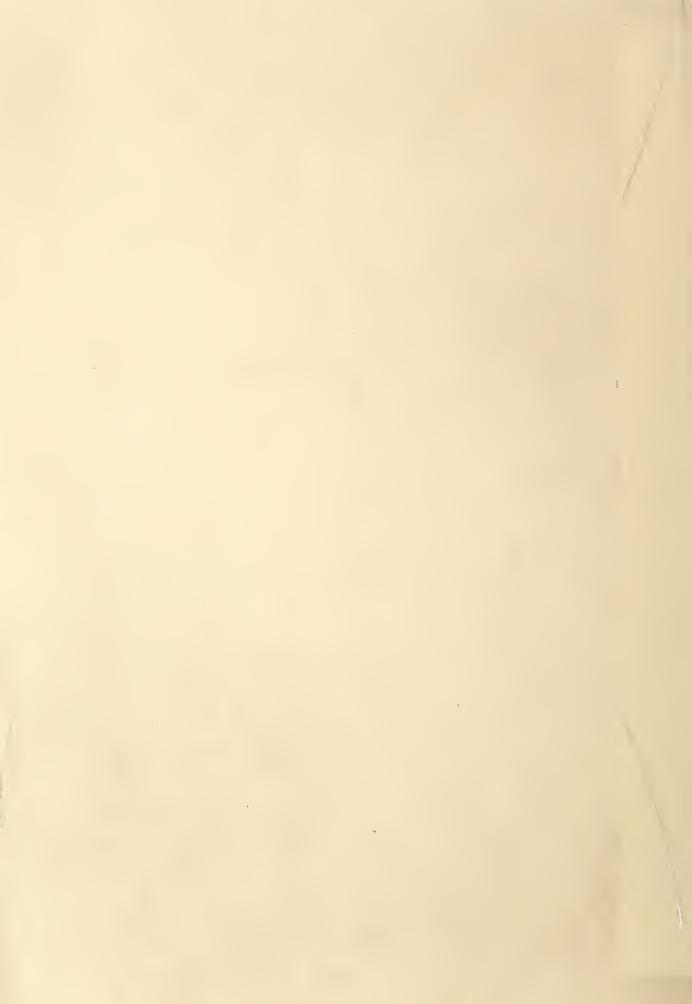
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CEREAL COURIER

Official Messenger of the Office of Cereal Investigations OFFT, OF AGRICULT (NOT FOR PUBLICATION)

Vol. 16.

January 15, 1924
Personnel (January 1-15) and Field Station (Dec. 1-31) issue.

PERSONNEL ITFMS

F. A. Coffman, formerly in charge of the cereal experiments at the Akron Field Station, Akron, Colo., was transferred to Washington January 1 to become assistant agronomist in oat investigations. It is expected that he will devote most of his time to the more specific research problems in oat investigations coming under the general project of the improvement of oats.

Dr. R. A. Emerson, in charge of plant breeding at the New York State College of Agriculture, Ithaca, N. Y., and consulting specialist of this Office on the genetics of corn, stopped in Washington from January 1 to 4, inclusive, his way back to Ithaca from Cincinnati, where he was in attendance at the etings of the American Association for the Advancement of Science and afliated societies. While in Washington, Doctor Emerson conferred with the realist in charge and others concerning certain corn investigations that are ing contemplated. Arrangements were completed for the trip which he and Richey are to make to South America to obtain rare and valuable types of orn. Passage was booked on the S. S. "Southern Cross," of the Munson Line J. S. Shipping Board), sailing from New York February 2 for Buenos Aires.

Frank Frolik, formerly field assistant in the rust epidemiology studies conducted in cooperation with the Minnesota Agricultural Experiment Station, at University Farm, St. Paul, was appointed January 15 as agent in rust epidemiology studies with headquarters at St. Paul, Minn.

Dr. H. V. Harlan, agronomist in charge of barley investigations, wrote from Addis Abeba December 3 that in the latter part of November he had been quite ill with a high fever and symptoms of typhus. He had received excellent care, however, and at the time of writing had recovered sufficiently to be able to continue his travels, accompanied by a special attendant provided by the Regent of Abyssinia.

Dr. H. B. Humphrey, pathologist in charge of cereal disease investigations, attended the 25th annual convention of The Association of Southern Agricultural Workers at Birmingham, Ala., January 10, 11, and 12, and presented a paper on the present status of corn root rot.

1100 1150

No. 1

C. H. Kyle, agronomist in corn investigations, C. E. Leighty, agronomist in charge of eastern wheat investigations, and T. R. Stanton, agronomist in charge of oat investigations, attended the meeting of The Association of Southern Agricultural Workers at Birmingham, Ala., January 10, 11, and 12. They report that from 350 to 500 delegates were present. Much interest was manifested in the programs, particularly because of the critical conditagriculture in the South as the result of the ravages of the boll weevil

It appears that an emergency situation has been reached because of serious outlook not only for the farmer but also for the mills of this a other countries. The mills may have to suspend operations if the supply raw cotton is not increased.

A program for boll-weevil control was adopted. The chief recommend were for the use of poisons, particularly calcium arsenate, which invest tions have shown to be the most valuable in reducing the number of weevi Better cultural methods and the importance of legumes in the rotation altwere especially emphasized. Several papers were presented which discuss relative value of different legumes in improving the soil and reducing the commercial fertilizer requirements. Other papers showed the value of and place for commercial fertilizers and the importance of mineral fertilizer a whole to the agriculture of the South.

The matter of growing cash crops other than cotton was discussed quite fully, but the consensus of opinion apparently was expressed by J. Phil Campbell, Director of the Extension Service of the Georgia State College of Agriculture, who said that cotton is and will continue to be the principal cash crop of the South and that all other crops must be looked upon as supplementary and as a means of sustaining the farmer's family and necessary livestock. For this latter purpose certain well-known crops highly recommended were corn, oats, wheat, soybeans, peanuts, sweet potatoes, nuts, etc.

Dr. Lowell F. Randolph, instructor of cotany in the New York State College of Agriculture, Ithaca, N. Y., and agent of this Office in cytological studies of corn, was in Washington January 1 and 2 conferring with members of the staff concerning the progress of these studies.

Miss Carlie A. Reddout was appointed January 2 as clerical assistant in the office of the State leader of barberry eradication at Bozeman, Mont.

Miss L. Mabel Roberts was appointed January 7 as clerical assistant in the cereal disease investigations conducted in cooperation with the California Agricultural Experiment Station at Berkeley, Calif. She takes the place of Mrs. Agnes C. Anderes, who resigned from the service last October.

The appointment of Roy A. Weaver, junior analyst in the corn investigations conducted under the direction of Dr. G. N. Hoffer, in cooperation with the Purdue University Agricultural Experiment Station, at LaFayette, Ind., was terminated December 31, 1923, Mr. Weaver having completed his duties.

VISITORS

Baron André Hatvany, of Hatvan, Hungary, conferred with members of the Office staff on January 7 concerning the development, on his farms in Hungary, of a number of strains of cereal crops. He is desirous of having tests made of these improved strains by the Ü. S. Department of Agriculture with the object of determining their adaptation to different sections of the United States. Baron Hatvany is particularly interested in developing American markets for his improved cereals and forage-crop seeds.

MANUSCRIPTS AND PUBLICATIONS

A manuscript entitled "Simultaneous Surveys for Stem Rust: A Method of Locating Sources of Inoculum," by E. M. Freeman and L. W. Melander, was approved January 8 for publication in Phytopathology.

A manuscript entitled "The Better Utilization of Straw," by <u>C. E. Leighty</u>, was approved January 10 for publication in the Journal of American Society of Agronomy.

A paper entitled "Some Cases of Apparent Single Fertilization in Barley," by <u>Harry V. Harlan</u> and <u>Merritt N. Pope</u>, was approved January 15 for publication in the Journal of Botany.

Galley proof of Department Circular 305, entitled "Electrochemical Treatment of Seed Wheat," by C. E. Leighty and J. W. Taylor, was read January 3.

Galley proof of article entitled "Barberry Fradication in Illinois," by <u>F. E. Kempton</u>, <u>G. C. Curran</u>, and <u>E. D. Griffin</u>, for publication in the Proceedings of the Illinois Academy of Sciences, was read January 4.

Galley proof of Department Bulletin 1209, entitled "Effects of Selection on the Yield of a Cross between Varieties of Corn," by Frederick D. Richey, was read January 8.

Galley proof of article entitled "Adjusting Yields to their Regression on a Moving Average, as a Means of Correcting for Soil Heterogeneity," by Frederick D. Richey, for publication in the Journal of Agricultural Research, was read January 12.

Galley proof of article entitled "Seed-Color Inheritance in Certain Grain-Sorghum Crosses," by John B. Sieglinger, for publication in the Journal of Agricultural Research, was read January 15.

Page proof of Department Bulletin 1197, entitled "Experiments with Emmer, Spelt, and Einkorn," by <u>John H. Martin</u> and <u>Clyde E. Leighty</u>, was read January 9.

A revised edition of Farmers' Bulletin 892, entitled "Spring Oat Production," by <u>C. W. Warburton</u>, was received January 4 from the Government Printing Office, bearing date of revision of June, 1923.

The article entitled "Varietal Resistance in Winter Wheat to the Rosette Disease," by R. W. Webb, C. E. Leighty, G. H. Dungan, and J. B. Kendrick, was published in the Journal of Agricultural Research, v. 26, no. 6, p. 261-270. November 10, 1923. (Received January 12, 1924) (In cooperation with the Illinois and Indiana agricultural experiment stations.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (January 8) The weather at present is very unfavorable to fall-sown grains. For most of the fall and early winter it has been very mild but recently it has turned cold, without sufficient snow to cover the fields. The result very likely will be considerable winterkilling, which will be serious if it affects the farmers. So far as our own experiments are concerned, it will be an aid since we have a very large planting of new selections from hybrids from which, after a severe winter, the less winter-nardy will be eliminated and only those of extreme hardiness saved. Over a period of time this amounts to a saving of work, as it will be unnecessary to carry a strain along for several years eventually to have it eliminated by a severe winter.

The grain from the oat and barley series is now being cleaned and the bushel weights taken. We soon shall begin to make selections for the spring seeding, and the samples will be weighed up.

The plants in the greenhouse are making a good growth and will furnish considerable material for genetic and cytological studies.

Notes are now being taken on the various hulled and hull-less crosses and some very interesting genetic facts are being found. It is planned to bring these results together for publication in the near future.

The department of plantbreeding is busy with the final details in connection with the rooms we are to have in the new Plant Industry Building that is being planned and for which we hope that bids will be received before July 1.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (No report)

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Fradication, J. H. Muncie) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, LaFayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, LaFayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, LaFayette (Barberry Fradication, K. E. Beeson) (No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, East Lansing (Barberry Fradication, W. F. Reddy) (No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Bushel

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (December 15) So far in December the weather has been cold and disagreeable. All the grainsorghum grown in the plats has been threshed, the grain cleaned, and the yields computed. The plat yields not already reported are as follows:

Varietal Experiments

Yields (Acre)

	C.I.	Total crop	Grain	Grain	Weight
Variety	No.	· Lbs.	Lbs.	Bu.	Lbs
Dwarf milo	332	3986	495	8.5	56
Dwarf White milo	627	4050	540	9.3	54
Fargo straight-					
neck milo		4179	296	5.1	55
Standard milo	234	4436	321	5.7	55
Standard White milo White kafir (tall)	352 566	3986	32 1 281	5.7 4.7	54 57
Red kafir	34	2869 3150	568	9.5	59
Bishop kafir)"	3600	129	2.1	56
Darso	615	2588	833	14.4	57
Schrock	616	3375	619	10.7	56
Shallu	85	3938	236	4.1	59
Dwarf hegari	620	6750	1,1	0.2	Not enough
					to test.
		Date-of-seeding E		<u>s</u>	
		Dwarf Milo, C.I	.No. 332		
Date Seeded					
June 30		7600	r d c	10.3	IT 0
oune 30		3675	585	10.1	52
		Sunrise kafir, C	.I.No.472		
June 15		2775	720	12.0	59
June 30		3225	525	8.8	56
				•	
		Feterita, C. 1.	. No.182		
June 30		29 <u>:</u> 2 5	720	12.4	46
July 16		1950	360	6.2	51
		Dwarf feter	rita		
June 30		2550	630	10.9	48
July 16		1350		4.3	50
		Farly white milo	C.I. No.	480	
July 16		2025	450	7.8	52
				_	

On December 10 the writer, accompanied by L. F. Locke of the Woodward Field Station, drove to Arnett, Okla., to note the behavior of certain grain sorghums that are being tried by farmers of Ellis County under the direction of T. M. Marks, County Agent. According to estimates supplied by the farmers, the relative yields of the several grain sorghums are as follows:

		Yield
Variety	No. of farms	(Bu. per acre)
Darso	9	18.33
Reed Kafir	2	15.00
Bishop kafir	9	14.11
Standard milo	4	11.00
Blackhull kafir (local)	10 .	10,50
Straightneck milo	18	10.40

It is regretted that a larger number of farmers did not have Reed kafir in their trials. Between Woodward and Arnett the wheat acreage is not so large as it was last year, and the wheat is making very slow growth.

Maximum temperature for this month to date, 74° on the 7th, minimum 23° on the 13th and 14th. Precipitation for the same period, 0.82 inch, in the form of a wet snow on December 10 and 11.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (No report)

COLORADO

Akron Field Station, Akron (F. A. Coffman) (No report)

Agricultural College, Fort Collins (Barberry Eradication, E. A. Lungren)
(No report)

NEBRASKA

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, R. U. Cotter) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, L. D. Hutton)
(No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel) (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (January 1) A period of unusually mild fall weather came to an end the day after Christmas with a snowfall of 3 inches, followed by a cold wave that brought the temperature down to 27 degrees below zero this morning. Previous to this cold wave the ground was bare throughout November and December. Calm weather prevailed during most of this time, with an average wind velocity of 5.1 miles per hour in December. The temperature did not get as low as zero until December 30.

The mean temperature for December was 22.8 degrees, as compared with a normal of 17.5 degrees. The mean temperature for November was about 8 degrees above normal. The mean temperature for December was exceeded by that for 1912 and 1913. The absence of snow and wind during the past month, however, give it first place as the mildest winter month in the history of the Substation. Mild weather prevailed over the State, as shown by the fact that baseball games were played in a number of cities as late as Christmas day.

The total precipitation for the past year was 19.7 inches, as compared with a normal of 15.43 inches, while that for the growing season (April to September, inclusive) was 17.6 inches, as compared with a normal of 12.13 inches.

The abundance of rain during the growing season resulted in good crops at the Substation of all cereal grains. The same was true of all the slope region of the State with local exceptions, and the yields of wheat were reduced somewhat by rust, and by drought early in the season.

There is considerable demand for Kota seed wheat this winter and some inquiry regarding wilt-resistant flax.

Superintendent Moomaw left for Washington the latter part of December, to be gone till about the first of March.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (No report)

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (January 1) The weather in November and the greater part of December was very mild, but there was a sudden and severe change during the last few days of December. Snow began to fall on the morning of December 28, accompanied by a continuous drop in temperature. The minimum temperature recorded on the morning of the 29th was 26 below zero. The temperature since then has remained below zero continuously. The maximum temperature recorded during this period was 11 degrees below zero on January 1, while the minimum temperature was 40 degrees below zero on the morning of December 31. This is the lowest temperature that has been recorded at the Substation. The previous record low temperature, since daily temperature readings were begun in March, 1910, was 37 degrees below zero on January 10 and 11, 1916, and on January 28, 1918. The temperature reached 36 degrees below zero on January 26, 27, and 28, 1916, and on January 30, 1918.

The total annual precipitation in 1923 was 18.58 inches, as compared with 17.42 inches as the average annual precipitation of 15 years, 1908-1922, inclusive. The annual precipitation of 1923 has been exceeded five times since the experiment station was established in 1908. This occurred in the years 1909, 1911, 1915, 1916, and 1920. The seasonal precipitation (April 1 to July 31) recorded in 1923 was 11.73 inches, while the average seasonal precipitation for the 15 years has been only 9.07 inches. The seasonal precipitation of the past year has been exceeded only once since the experiment station was established, namely, in 1920, when the seasonal precipitation was 13.14 inches. The seasonal precipitation of 1915 almost equalled that of the past year, 11.06 inches having been recorded that year.

Fall wheat has been protected from the recent low temperatures by a comparatively even covering of 8 or 10 inches of snow. Wheat went into winter in fair condition or better, though it suffered from a few bad dust storms in December.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

.WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (A. E. McClymonds) (December 26) I should have sent you long ago a record of the crop yields at the Aberdeen Substation. It is better late than never, so I am now sending yields of the wheat, oats, and barley for this year, and will send yields of the flax and peas in a few days.

Winter Wheat Varieties

Seven varieties of winter wheat were tried this year. This is the first winter wheat that has been tried in this section.

		Yield
Variety	C. I. No.	(Bu. per acre)
(Average	of 2 plats)	,
Turkey Red	1571	53.1
Kharkof	1442	51.9
Kanred	5146	48.3
Jenkins Club	4676	45.8
Hybrid 128	4512	42.9
Forty Fold	5290	42.6.
Federation	4734	36.3

Spring Wheat Varieties

The spring wheat varieties were increased this year and two, Major and Onas, showed up exceptionally well, both in habit of growth and yield.

		Yield
Variety	C. I. No.	(Bu.per acre)
Variety (Average Major Onas Federation Boadiceae Dicklow Hard Federation Red Bobs Pacific Bluestem White Federation Baart	of 2 plats) 4984 6221 4734 6220 3663 4733 6255 4067 4981 1697	(Bu.per acre) 67.4 61.8 60.9 59.8 58.6 54.3 53.1 51.1 50.9 48.9
New Zealand Quality	6011 6607	45.6
New Zealand	6011	48.6
Marquis	3276	44.6

Oat Varieties

The yields of oats were higher than they have been in the last three years. One plat yielded $172\frac{1}{2}$ bushels to the acre.

Variety	C. I. No.	Yield (Bu. per acre)
(Average of 2	plats)	
American Triumph Iogren Hvitling Victory from Sweden Golden Rain from Sweden Crown from Sweden Victory Welcome Swedish Select Early Mountain Albion Idamine Rustless	1745 2024 1631 2020 2021 2022 1654 1634 1627 754 729 1834 724 2053	128.1 124. 120.1 120. 120. 118.7 116.2 115.8 112.5 111.2 110.1 109.9 108.
Markton Golden Rain	1718	106.8

Barley Varieties

The barley plats did well. Trebi, Beldi, and Sandrel were grown on such rich ground that they lodged to some extent.

		Yield
<u>Variety</u>	C. I. No.	(Bu. per acre)
Trebi	936	85.9
Beldi	190	83.6
Sandrel	937	77.1
Hannchen	531 '	76.7
Algerian	1179	64.3
Meloy	1176	62.9
Smyrna	910	62.
Colsess	2792	58.8
Horsford	507	30. 8

The weather was ideal for small-grain production. It was cool and rainy in the spring and did not get hot until about the first of August. We had no rains during the period of harvest, and an excellent quality of grain was obtained.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (January 8) So far we have had a dry fall and winter. The total precipitation from September 1 to December 31 was 4.06 inches, as compared with 14.59 inches in 1922, and a 10-year (1913 to 1922) average of 9.30 inches for the same period.

Since January 1 the weather has been cold, and on January 2 we had about 3 inches of snow which remained on the ground for 2 or 3 days. Because of the cold weather and shortage of rain, pasture growth is short.

Rough rice is selling at from \$2.75 to \$2.85 a hundred, but many growers are holding for \$3 a hundred.

The second semester at the University of California begins January 14, and I expect to leave here for Berkeley the latter part of this week. Mail will reach me if addressed to Hilgard Hall, care of Prof. W. W. Mackie.

University Farm, Davis (V. H. Florell) (No report)

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16

January 31, 1924
Personnel (January 15-31) and Project Issue

No. 2.

PERSONNEL ITEMS

Ralph U. Cotter, State leader in barberry eradication in Wyoming, has been granted leave of absence without pay from January 16, 1924, to June 15, 1924, inclusive, in order to engage in full-time graduate studies at the University of Minnesota. At the termination of the period of his leave of absence he will return to Laramie, Wyo., to resume activities in barberry eradication.

Charles R. Hursh, agent in the investigation of the biochemical nature of the resistance of vieat to stem rust, conducted in cooperation with the Minnesota Agricultural Experiment Station at University Farm, St. Paul, Minn., resigned on January 31 to devote himself to scientific research in Europe.

Frederick D. Richey, agronomist in charge of corn investigations, left Washington January 31 for New York. There he will meet Dr. R. A. Emerson, in charge of plant breeding at the New York State College of Agriculture, Ithaca, N. Y., and collaborator of this Office in corn investigations, and make final preparations for sailing from New York on the S. S. "Southern Cross," of the Munson Line (U. S. Shipping Board) on February 2 for Buenos Aires. They will arrive there about February 19 and then will proceed across South America in their search for rare and valuable plant material, particularly maize. Mail will reach them at the American Embassy, at Santiago, Chile, from March 1 to 25. From April 1 to 10 their address will be in care of the American Consul at La Paz, Bolivia; and from April 10 to May 5 in care of Dr. Alberto Giesecke, Director of the University of Cuzco, Cuzco, Peru. They will be in the vicinity of Lima, Peru, from about May 5 to 15. Mail should be sent in care of the American Consul at that place. Mr. Richey expects to return to Washington via New York about June 1, while Doctor Emerson probably will return by way of San Francisco.

Resignations of the following field assistants in barberry eradication have been accepted during the last quarter:

Illincis: Franklin E. Fobes, Darrell I. Hanly, Paul T. Sanders, and James A. Twardock; <u>Indiana</u>: Everett J. Eliason, Harold R. Holcomb, Forrest D. McCrea, Charles H. Miller, Charles G. Scearce, Gerald S. Sewell, Hubert K. Snively, and Harold J. Wegel; <u>Iowa</u>: Clare M. Bissell, Maurice W. Buchanan,

John E. Dodge, Lester F. Frwin, Jesse L. Fowler, Alva C. Hill, Forrest G. Inman, Vern A. Langmaid, Raymond T. Larson, Frank H. Mendell, Walter P. Raleigh, Kenneth Reeves, John M. Steddom, Steve J. Timborious, and Edward M. Zeman; Michigan: Herbert H. Birch, Flvin D. Dressel, George L. Fick, Gerald E. Mallory, Lucius H. Moore, George W. Olson, Howard E. Parson, Carl H. Ripatte, Walter A. Steketee, Paul E. Tilford, and William J. Ullenbruch; Minnesota: Roland C. Bevan, Robert M. Groesbeck, Wilbur A. Korfhage, and Vard M. Shepard; Montana: William L. Popham; Nebraska: Harold M. Adams, Charles E. Barth, Jacob Friedli, Harvey B. Harris, Gomer V. Jones, Thomas L. Koontz, Edmund J. Kotlar, George R. Pinkerton, Julian W. Riddick, Percy Rohrbaugh, Loyal L. Rulla, Forrest J. Scrivner, Willard J. Simpson, Claude W. Thurber, and Robert E. Weir; North Dakota: Ronald C. Bentley, E. Verle Deach, Harland J. Fogarty, George C. Kadlec, Theodore C. Meldahl, Lyle E. Mowris, Franklin W. Roberts, Leonard N. Severson, Winfield S. Tarbell, and Francis W. Trumbull; Ohio: Marcus E. Buckman, George C. Cowdrey, and Ralph H. Hagelbarger; South Dakota: Merton Q. Aldrich, Floyd D. Billings, Louis A. Eberlein, Harold J. Enright, Paul L. Frrington, Walter H. Michaels, Lawrence C. Sayre, Glenn L. Walter, and Harry Wimer; Wisconsin: Lellen S. Cheney, Leo J. Federer, Arthur M. Knutson, Frank D. McKay, Kenneth H. Corbett, and Robert C. Sykes.

VISITORS

Karl H. Townsend, formerly connected with the clerical staff of the Office and now a plant quarantine inspector in the Houston office of the Federal Horticultural Board, was a visitor January 24 and 26.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Studies on the Smut of Maize," by Alden A.

Potter and Leo E. Melchers, was submitted January 17 for publication as a Department Bulletin.

A manuscript, entitled "Emmer and Spelt," by <u>J. H. Martin</u> and <u>C. E. Leighty</u>, was submitted January 25 for publication in the Farmers' Bulletin series.

A manuscript, entitled "Experiments with Small Grains on the Arlington Experiment Farm," by <u>J. W. Taylor</u>, was submitted January 28 for publication in the Department Bulletin series.

A manuscript, entitled "Wheat Scab and Corn Root Rot Caused by Gibberella saubinetii in Relation to Crop Successions," by Benjamin Koehler, James G. Dickson and James R. Holbert, was submitted January 29 for publication in the Journal of Agricultural Research.

A manuscript, entitled "Production of Seed Flax," by A. C. Dillman, was submitted January 30 for publication in the Farmers' Bulletin series, to supersade Farmers' Bulletin 785.

A paper, entitled "Effects of the Method of Desiccation on the Nitrogenous Constituents of Plant Tissue," by <u>K. P. Link and E. R. Schulz</u>, wis approved January 30 for publication in the American Journal of Chemistry.

A paper, entitled "Development of Wheat Plants from Seminal Roots," by Lowell F. Locke, of the Office of Dry Land Agriculture Investigations, and J. Allen Clark, was approved January 31 for publication in the Journal of American Society of Agronomy.

Galley proof of paper, entitled "The Black-Bundle Disease of Corn," by C. S. Reddy and J. R. Holbert, for publication in the Journal of Agricultural Research, was read January 19.

Galley proof of manuscript, entitled "Anchorage and Extent of Corn Root Systems," by <u>James R. Holbert</u> and <u>Benjamin Koehler</u>, for publication in the Journal of Agricultural Research, was read January 21.

Page proof of Department Circular 305, entitled "Electrochemical Treatment of Seed Wheat," by C. E. Leighty and J. W. Taylor, was read January 30.

Page proof of Department Bulletin 1209, entitled "Effects of Selection on the Yield of a Cross between Varieties of Corn," by <u>Frederick D. Richey</u>, was read January 30.

The article, entitled "Influence of Soil Temperature and Moisture on Infection of Wheat Seedlings by <u>Helminthosporium</u> sativum," by <u>H. H. McKinney</u>, appears in the Journal of Agricultural Research, v. 26, no. 5, p. 195-217. November 3, 1923. (Received January 17, 1924). (In cooperation with the Wisconsin Agricultural Experiment Station).

The paper entitled "The Nature of Resistance to Seedling Blight of Cereals," by <u>James G. Dickson</u>, <u>Sophia H. Eckerson</u> and <u>Karl P. Link</u>, was published in the Proceedings of the National Academy of Sciences, v. 9, no. 12, p. 434-439. December, 1923. (Received January 23, 1924). (In cooperation with the Wisconsin Agricultural Experiment Station).

Farmers' Bulletin 1358, entitled "Growing of Rye in the western Half of the United States," by John H. Martin and Ralph W. Smith, was received from the Government Printing Office January 31.

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The above list of translations of foreign papers on cereals and cereal diseases supplements the lists found in the Cereal Courier, v. 13, p. 12-15, 52, 69, and 225-226; v. 14, p. 38, 39, and 99-100; and v. 15, p. 11-13, 46-47. The translations are available in the library of the Bureau of Plant Industry.

PROJECT REPORTS

RUST INVESTIGATIONS

(Dr. H. B. Humphrey, Fathologist in Charge)

Barberry Eradication, (Dr. F. E. Kempton, Pathologist in Charge)

PROGRESS OF BARBERRY ERADICATION, 1923

On December 31, 1923, the original property-to-property survey had covered 662 counties out of 894 requiring survey. Those 662 counties contained 543,984 square miles, or 75.4 per cent of the 721,831 square miles in the 894 counties originally requiring survey. In the calendar year January 1 to December 31, 1923, approximately 190½ counties, or 177,058 square miles, nave been covered in the original survey, at an approximate cost of \$2.20 a square mile. In addition, 42½ counties, containing approximately 36,000 square miles, have been covered in a second complete survey, and 361 counties have been covered in resurvey. During the year a total of 4,005,342 bushes, seedlings, and sprouting bushes were found and 3,967,738 destroyed in all surveys (See Table 1). The record for the six years to December 31, 1923, shows the enormous total of 10,073,667 bushes, seedlings, and sprouting bushes found and 9,379,774 destroyed.

Cooperation

The campaign is organized in cooperation with 13 north-central wheat-growing States, namely, Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming. There is formal cooperation with the colleges of agriculture, extension divisions, and other State organizations. Interested agencies cooperate closely.

For the fiscal year 1924, \$425,000 was appropriated, of which \$125,000 was to be available only when met by funds from the States and other cooperating agencies. The entire amount became available. The funds or value of services rendered by State organizations and other cooperating agencies within the 13 States, as certified to the Department of Agriculture to meet the provisions of the appropriation, are shown in Table 2. In addition, much valuable service was rendered by State, county, township, and other local organizations as well as many civic and farmers organizations in support of the campaign and in the distribution of publicity materials.

barberry bushes, seedlings, and sprouting bushes were found and removed, and the numbers of bushes, seedlings, and sprouting bushes found and removed in the barberry eradication campaign Table 1. - Summarized data from all surveys showing, by States, the numbers of properties on which from January 1 to December 31, 1923.

								-2	<u>-</u>								
	g Rushes	:Destroyed	1,223	5,441	2,117	7,764	1,873	7,080	119	3,940	188	948,4	6,651	64,722	8	106,044	
	Sprouting	1 1	1,226:	5,441:	2,422:	8,115:	1,873:	7,080:	.:. .:.	3,940:	188:	4,846:	6,651	64,560	139:	106,700:	
وسر	ය සිටුහ	: Dastrojed: Found	1,713:	, 540, 798:	3,506	9,022:	706,644	19,151:	1,290:	4,690:	9	171,382	3,849	,143,188	36:	,610,681:	Andreas and the state of the st
Numbers of	Seedlings		1,119:	1,546,793:1	3,505	9,022:	7.06,644:	19,051:	1,290:	4,690:	·· •	171,382:	3,849	1,198,038.1	36:	:3,665,481:3,610,681:106,700:	
	Pushes	. Destroyed : Found	401	38,320	23,284	25,074	91,457	. 5,525	515	#, 348	2,384	23,429	4,016	31,033	127	251,013:	
• •			225:	38,505:	49,032:	22,940:	83,563:	3,351	,478 14:28	4,371:	2,384:	12,250:	4,016	11,690:	6.1	:233,161:	
	On waich sprout-:	Found: Destroyed: Found	125	229	161	375	236	291	17	289	98	5) 5)	106	11.37	7	3,373	
1			128:	627:	165:	37.7	236:	291:	17:	289:	555	566:	106	432	14:	:3,379:	
perties	seedlings weren:	cstroyed	30	. 236	38	180	. 695	121	्य	83	rH	#S	19	132	ZI.	1,184	
Numbers of Properties	on w	: Found : Lestroyed . Found : Destroyed :	30:	256:	23	 23	3.09:	: 121:	~ ~ ·	. 63	· —	% † †	2	190	2	:1,152:	
Number	Un waten	satroyed	- <u>8</u>	1,347	435	£655	1,818	237	쿣	597	70	2,076	114	1,468	7	9,183	
	Un waten	Found :	40	:3,2%:	1573	ें डि.	1,064;		17:		.0.7	1,758:	114:	1,141		:7,371:	
		State	Colorado	Illinois	Indiana	Icwa	Michigan	Minnesctu:	Montana	Nebraska	N. Dazota	Ohio	S. Dakota:	Wisconsin 1,141	Wyoming	Total	

Grand total of bushes, seedlings, and sprouting bushes found, - 4,005,342; destroyed, - 3,967,738.

Table 2 - Aid furnished for barberry eradication by State and other cooperating agencies for the fiscal year beginning July 1, 1923.

State or agency	•	Appropriation or Value of Serice
Colorado Illinois Indiana Iowa Michigan Minnesota Montana Nebraska North Dakota Ohio South Dakota Wisconsin Wyo ing The Rust Prev ntion Asse	ociation	\$ 700.00 10,200,00 5,250.00 5,800.00 7,060.00 14,750.00 725.00 2,168.00 13,600.00 7,650.00 5,597.00 5,000.00 46,000.00
Total		\$ 125,000.00

The Conference for the Prevention of Grain Rust

Valuable cooperation has been received from this organization, composed of the Governor, the Commissioner of Agriculture, a representative of the State agricultural experiment station, and the President of the State Farm Bureau Federation or corresponding farmers organization of each of the 13 States interested, and an additional membership at large comprising representatives of milling associations, railroads, implement dealers, bankers, national farmers' organizations, and other business interests. Much assistance has been given by them in furnishing publicity material to all classes of people in the barberry-eradication area. This included a circular intended especially for farmers, the total distribution of which reached approximately one million copies, and a poster illustrating the rock-salt method of killing tarberries, 80,000 of which were distributed and displayed in banks, railroad stations, schools, post offices, and stores. Several other publications were issued to call the attention of various groups to the campaign. These included special statements to bankers, charts for use in schools, and samples of the common barberry in small envelopes for use in identifying the bush. All told, since the beginning of its activities, the Conference has distributed approximately two mullion pieces of literature.

In cooperation with the leaders in 10 of the 13 States, a publicity man from among the field assistants was designated to take care of educational phases of the campaign in the State. In some cases, either salary or expenses was paid by the Conference. Posters and literature mentioned above, panel exhibits, and moving picture reels were furnished supplementary to material furnished by the U.S. Department of Agriculture. Demonstrations were placed at 255 State and county fairs and 261 meetings of various kinds. A department devoted exclusively to handling newspaper publicity has sent out 1,700 different stories to 6,000 publications in the 13 States during the past year. The Federal leaders in the States and the publicity men designated by them furnished about an equal number of articles to local papers.

Federal Publicity

In addition to the publicity activities carried on in cooperation with the Conference for the Prevention of Grain Rust, there has been distributed in 1923, through the offices of the State leaders and by field assistants, a total of 237,860 copies of Department bulletins and circulars. These include 17,000 copies of Farmers' Bulletin 1058 (revised), entitled "Destroy the Common Barberry;" 21,125 copies of Department Circular 188, entitled "Progress of Barberry Eradication;" 37,108 copies of Department Circular 268, entitled "Kill the Common Barberry with Chemicals;" 87,108 copies of Department Circula 269, entitled "Barberry Eradication Prevents Black Stem Rust in Western Europe and 26,525 copies of a poster, - "Destroy the Common Barberry."

Since the campaign began a total of 1,493,902 pieces of timely publicity material has been distributed through Federal channels. Thousands of circular letters to property owners and special groups have been distributed by the leaders in each State. One or more editions of State bulletins or circulars have been distributed in each of the 13 States and valuable publicity has been given through all State extension facilities.

Original Survey

The original survey includes a property-by-property survey in cities and villages and a farm-by-farm survey in the country.

The 13 States included contain 970 counties, an area of approximately 907, 32 square miles. Of this area, survey was required in the equivalent of 894 counties, containing 721,331 square miles, or about 75 per cent of the total area. The remainder is unsettled, mountainous, or sandy country. The total area contains about 1,830,000 farms and other millions of properties in cities, towns, and villages.

In the earlier years of the campaign, a property-by-property survey of practically all cities and villages was made. The few not surveyed are being covered as they are reached in the farm-to-farm survey.

In 1923 approximately $190\frac{1}{2}$ counties, or 177,053 square miles, were covered at an average approximate cost of \$2.20 per square mile. The square-mile cost varied from a few cents in thinly settled unwooded areas with few barberry bushes to about \$50.00 in some portions of counties where many escaped bushes were found and eradicated. During the year 233,161 bushes were found on 7,371 properties, and in the same period 251,013 bushes were eradicated from 9,183 properties. The bushes eradicated in excess of bushes found were bushes found but not destroyed in previous years. In addition, 1,727,335 seedlings were found and 1,722,535 destroyed on this survey. A total of 26,475 man days was spent in actual survey and eradication. The field assistants traveled by automobile, a total distance of more than 605,636 miles.

Second Survey

In 1923 the early appearance of severe local epidemics of stem rust, which were traced to barberry busnes remaining in certain counties previously surveyed and thought to be clean, made it seem advisable to make a second complete survey of several counties. Counties and parts of counties totaling 42½ counties were covered. In this area 3,762 bushes on 269 properties, and 476 spedlings on 7 properties were found and destroyed. These results show that in spite of the care used in the original survey, in which every propertimes were not found.

Some of the bushes found in the second survey were those cut down early in the campaign by property owners or tenants and which had since grown again. The State officers had no records of these bushes, and it is probable that these have developed and remained unobserved for several seasons. Others were bushes overlooked in the first survey.

It probably will be necessary to make a second survey in all counties in which many fruiting bushes have been found, as numerous seedlings may be expected to develop from the scattered seeds. It probably will be advisable to survey a second time all counties in which wheat is the principal crop. It is obvious that there remains a vast amount of work to be done before the area already surveyed once can be said to be completely cleared of barberry bushes.

Resurvey

In 1923 the resurvey included 361 counties. Over 10,000 man days were spent and 270,000 miles were traveled by field assistants in this phase of the campaign. In the year, 106,700 sprouting bushes were found and 105,044 destroyed. Of these, 13,075 were dug and 92,969 were treated with chemicals. In addition, 1,938,146 seedlings were found in resurvey and 1,883,146 were destroyed. Of these, 631,573 were dug and 1,256,573 were treated with chemicals.

Resurveys are made of only those properties upon which barberries have been found. It has become evident that several resurveys may be necessary. This is especially true of properties where seedlings continue to appear and where sprouts keep coming up from portions of root systems not properly removed in the first digging. If no sprouting bushes or seedlings are found on either the first or second resurvey, the property usually is checked as clear. It is almost impossible to remove all roots which have become entwine with roots of trees and shrubbery or which may have grown into the crevices of rocks. Chemicals give promise of more effective eradication and no doubt will reduce the number and extent of resurveys. However, where chemicals have been used some resurveys are necessary to see that all bushes have been killed and to eradicate seedlings that have appeared.

Escaped Barberry Bushes

The spread of escaped barberries to open woodlands, fence rows, rocky ledges, brushy pastures, and stream banks is the most serious problem of the campaign. Not all bushes are found among undergrowth and weeds on the original survey and some may be overlooked on the first resurvey. Seedlings continue to appear each spring for a number of years after all fruiting bushes are destroyed. In 1923, a total of 162,835 escaped bushes has been found on 1,345 roperties. In addition, most of the 3,665,481 seedlings found on original survey and resurveys were in areas of escaped bushes.

The greater number of properties on which escaped bushes were found in 1923 were in the more humid States of Wisconsin, Illinois, Iowa, and Michigan in the order named. However, a few escaped bushes were found along a stream bank in Fergus County, Montana, at least 5 miles from any habitation.

The eradication of all bushes and seedlings from areas of escaped bushes is progressing as rapidly as possible. Many small areas appear to be cleaned up. The complete clean-up of many larger areas is in sight because of the general use of crushed rock salt as a killing agent during the past season. In areas where there are many escaped bushes, numerous seedling may appear even as long as three or four years after all fruiting bushes are destroyed. Of course it will be a number of years before every seedling is found and eradicated from the larger areas of escaped bushes.

Killing Bushes with Chemicals.

Experiments on chemical methods of eradication begun in September,1921, have given excellent results. About 40 different chemicals were used on large barberry bushes in the field; many experiments also were carried out in the laboratory and greenhouse. A number of chemicals proved effective. Two were found to give uniformly good results. These were crushed rock salt and a sodium arsenite solution. The sodium arsenite solution proved dangerous to livestock and poultry and its use has been discontinued. Crushed rock salt and flake or packers' salt have proved effective and may be applied at any time of year. One or the other usually is available or can be procured in a reasonable length of time.

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For the common barberry bush of average size 10 pounds of salt piled carefully around and over the base of the bush means certain death. It does not take so much to kill smaller bushes but no bush should receive less than 5 pounds. Shoots arising at a little distance from the crown must be treated separately. Care should be taken that livestock or poultry do not eat excessive quantities of salt.

Experiments are still in progress with 5 other chemicals. Since beginning chemical treatments, 498 tons of salt, 704 gallons of a concentrated solution of sodium arsenite, 1,495 gallons of kerosene, 158 gallons of water-gas drip oil, and a few gallons of other chemicals that showed promise as killing agent have been used. Over 3,000,000 bushes, seedlings, and sprouting bushes were treated.

Investigations are being carried forward by Noel F. Thompson on the best method of chemical eradication of barberry seedlings. The morphology of the common barberry plant also is being studied. Areas of escaped barberri are studied in 10 States to determine methods of seed distribution, as well as soil and climatic relationships.

Dr. E. R. Schulz is carrying on chemical studies. These include: (1) the relation of seasonal storage of reserve food products in the different parts of the barberry clant to the time of year for effective treating with chemical (2) studies of the effects of sodium arsenite on various plants and on the soil (3) the action of salt on plant tissues with special reference to the common barberry; (4) the sterilizing effects of salt on soil; and (5) analyses of barberry tissues for alkaloids, such as berberine and hydrastine, and for glucosides, with methods for their extraction.

Native Barberries

There are in the United States several species of native barberries.

Most of these do not carry the stem rust of grains. Berberis (Mahonia)

aquifolium, while not known to spread rust in its native habitat, is susceptible under greenhouse conditions. It should not be planted in the more humid wheatgrowing areas.

A native barberry (Berberis canadensis Miller) was found by early settlers in the Appalachian Mountains in scuthwestern Virginia, southern West Virginia, and in western North Carclina. It is susceptible in nature and spreads stem rust to grains. In some localities at least it is as much a menace to the growing of grain as the common barberry, Berberis vulgaris L. In 1923, numerous clumps of bushes of this species were found in Pulaski, white, and Carroll counties, Indiana. They were scattered here and there for over 50 miles along the Tippecance River, on gravelly and sandy banks or limestone cliffs within a few rods of the stream. It is rather remarkable that neither bushes nor seedlings were found scattered in woodlands and fence rows of nearby farms. The occurrence of this species also has been reported from southern Missouri and northern Arkansas. Limited experiments in methods of eradication are in progress in both Indiana and Virginia.

Rhamnus Survey

State leaders and field assistants cooperated with the pathologist in charge of crown-rust investigations by reporting the location of all Rhamnus cathartica coming to their notice in the course of their regular work.

Pelation of Barberries to Rust

The barberry eradication campaign is based upon studies of the methods of spread of rust and its control. While these studies are carried on under the direction of Dr. E. C. Stakman, pathologist (and agent) in charge, and Edmund B. Lambert, assistant pathologist, in connection with research on stem rust, much of the administration and most of the field work necessarily is accomplish under barberry-eradication funds, and through the cooperation of the State leaders in barberry eradication and their field assistants.

The leaders in most of the 13 States conduct over-wintering studies in various parts of their States. The leaders and field assistants report the presence of stem rust, estimate prevalence and severity, and in some cases, estimate resultant losses. They prepare maps of the spread of rust from infected barberry bushes and find bushes through rust surveys. It is only through continued cooperation of every one directly affected in reporting all local outbreaks of stem rust and in studying each local outbreak to see if it can be traced to a barberry bush, sprouting bush, or seedling, that the last barberry can be found and destroyed in these 13 wheat-growing States.

Climatic conditions in the summer of 1923 were exceptionally favorable for the rapid development and spread of stem rust. The preliminary estimate of losses from stem rust of wheat are much lower than those for 1919 and 1920, and is in no way comparable with the enormous losses of 1916, as shown by Table 3. Had the 5,000,000 busnes eradicated prior to 1923 still been in existence in the summer of 1923, there is reason to believe that the stem-rust epidemic of 1923, which became very severe locally, might have become as generally severe and as tremendously destructive as the epidemics of 1904 and 1915.

In the areas where local epidemics became severe, numerous sprouting bushes and seedlings were found as well as a few scattered plantings overlooked in the first survey. In most cases these were spreading stem rust and were sufficiently numerous to account for all rust occurring this year.

Species of Berberis not definitely known to be susceptible to stem rust are being procured and their susceptibility to stem rust investigated by E. B. Ambert. The susceptibility of certain hybrids of Berberis vulgaris and Berberis thunbergii to stem rust is being studied by L. W. Melander.

Table 3. - Estimated losses of wheat from black stem rust in the United States for the 8-year period from 1910 to 1923, inclusive.

Year	: wheat production and losses from black stem rust.				
	Production :	Losses			
1916	650,828,000: 917,100,00: 940,987,000: 737,128,600: 214,900,000: 286,211,000,7	Busnels 180,000,000 16,205,000 204,000 71,417,000 54,905,000 22,293,000 21,004,000 29,378,000			

Data obtained in cooperation with the Plant-Disease Survey of the Bureau of Plant Industry, U. S. Department of Agriculture.

Estimates of December, 1923.

Plans are under way, in cooperation with the Office of Forticultural Investigations, for the establishment of a Berberis garden near washington, D.C. wherein all known species of Berberis can be assembled, propagated, studied, and described. This is necessary in connection with the studies of susceptibility to stem rust as well as to the establishment of quarantine measures against the distribution of susceptible species of Berberis to cleared areas.

Sundary for Sia Years

In the 6 years of the campaign, from April 1, 1918, to December 31, 1923, in the original survey, 6,062,529 bushes have been located on 03,215 properties and 1,762,704 seedlings on 862 properties. This includes a second survey of 422 counties in which 3,702 bushes on 263 properties and 476 seedlings on 7 properties were found and destroyed. There have been found in addition on resurveys, 251,767 sprouting bushes on 8,965 properties and 1,996,007 seedlings on 2,829 properties. There has been destroyed a total of 5,444.560 bushes on

bl,175 properties, 3,704,471 seedlings on 3,683 properties, and 260,743 sprouting bushes on 8,941 properties. These make a grand total of 10,073,667 bushes and seedlings found and 9,379,774 destroyed in all surveys (See Tables 4a and 4b). The remaining 693,893 bushes and seedlings will be eradicated as rapidly as arrangements with property owners can be made and as weather conditions permit.

In the 13 States included in this area there are 976 counties in which survey is required in an area approximately equal to 894 counties. In the original survey an area equivalent to approximately 662 counties has been covered. In the second survey 42½ counties have been covered. There remains an area approximately the equivalent of 232 counties requiring an original farm—to—farm survey. In view of the results of the past season it seems advisable to survey a second time many of the counties in which wheat is the principal crop. All properties on which seedlings or sprouts may continue to appear must be resurveyed until they are known to be cleared of the last seedling. Much remains to be done, and eternal vigilance is necessary to see that the work already accomplished has not been in vain.

Table 4a. - Summarized data from all surveys showing, by States, the numbers of properties on which barberry bushes, seedlings, and sprouting bushes were found and removed in the barberry eradication campaign from April 1, 1918, to December 31, 1923, inclusive.

: Numbers of Properties											
	On w	nich :		h scrouting							
State		es were - :		ings were -	bushes were -						
00000	: Found :	Destroyea:	Found :	Destroyed	rcuna	: Destroyed					
Colorado	1,696	1,695	44	44	1,524	1,521					
Illinois	10,776	10,432	235 :	236	62 7	617 .					
Indiana	4,410	4,358	38	38	338	334					
Iowa	9,304	9,295	103	103	582	681					
Michi _a an	9,,39	8,308	359	3:59	317	317					
Minnescta	4,848	4,848	2,446	2,446	1,623	1,628					
Montana	221	220	<i>2</i>	٤ :	128	128					
Nebraska	3 ,7 62	3,750	<u> 2</u> 9 :	29	7105	432					
N. Dakota	801	8C1 :	2	2	2 88	288					
Ohio	7, 866	7,470	118	118	856	: 856 :					
S. Dakota	953	٤53 :	118	118	- 567	637					
Wisconsin	9,161	9,C43	150	184	1,432	1,4±C					
Wyoming	<u> </u>	<u>85</u> :		6		•					
Total	: 63,415 :	: 01,175:	3,691 :	3,685	8,965	:: 8,5-1					

Table 4b. - Summarized data from all surveys showing, by States, the numbers of bushes, seedlings, and sprouting bushes found and removed in the barberry eradication campaign from April 1, 1918, to December 31, 1923, inclusive.

	: Numbers of -										
	:Bus	shes	: See	edlings :	Sprouting Bushes						
State	: Found :	Destroyed	: Found :	:Destroyed:	Found :	Destroyed					
Colorado	: 24,224	24,223	: 1,731	1,731:	6,298 :	6,294					
Illinois	181,387	168,706	: :1,546,798	1,546,798:	8,806	8,806					
Indiana	145,316	117,288	3,506	3,506:	19,459	19,154					
Iowa	787,036	786,301	30,522	30,522:	15,549	14,999					
Michigan	348,672	312,547	706,644	706,644:	2,220	2,220					
Minnesota	782,328	782,328	38,151	38,151:	46,020	46,020					
Montana	9,851	9,195	: 1,290	1,290:	4,643	4,643					
Nebraska	• 93,233	93,028	4,690,	4,690:	15,361	15,361					
N. Dakota	21,822	21,822	: 156	156	292	292					
Ohio	242,348	233,867	202,496	202,496:	9,382	9,382					
S. Dakota	: 56,325	51,318	25,247	25,247	42,477	42,477					
Wisconsin	: :3,365,845	:2,819,969	:1,198,088	:1,143,188:	81,081	80,774					
Wyoming	: 4,142	3,968	52	52:	379	321					
Total	: :6,062,529	5,424,560	:3,759,371	:3,704,471.	251,767	250,743					

Grand total of bushes, seedlings, and sprcuting bushes:
Found 10,073,667 Destroyed 9,379,774.

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations, Bureau of Plant Industry, U. S. Dept. of Agriculture. (MOT FOR PUBLICATION)

Vol. 16. February 15, 1924 No. 3.

Personnel (February 1-15) and Field Station (January 1-31) Issue.

PERSONNEL ITEMS

- J. M. Hammerly, assistant in corn investigations, early in February conferred with corn growers and nembers of county agricultural organizations in the vicinity of Ashburn, Va., concerning seed-corn production.
- Lynn D. Hutton, State leader in charge of the parberry eradication campaign in South Dakota, has been transferred to Washington to become familiar with and to assume the duties of assistant Federal leader in parperry eradication. N. Ray Carmichael, who now holds this position, will resign in the near future to take up the duties of business manager of Graceland College, Lamoni, Ia.
- Miss Ruth L. Lewis, employed as clerk in the Office for the past five years, resigned her position at the termination of January 51.
- Emil H. Ostrom, field assistant in rust survey in connection with barberry eradication, has been granted leave without pay from January 16 to March 31, 1924, in order to pursue graduate studies at the University of Minnesota.
- Donald R. Porter, formerly field assistant in barberry eradication in Iowa, has been appointed collaborator in barberry eradication in connection with his auties as Extension Plant Pathologist at the Iowa State College. The appointment will become effective February 16.

MANUSCRIPTS AND PUBLICATIONS

A paper entitled "The Corn Roct, Stalk, and Ear-Rot Diseases and their Control through Seed Selection and Breeding," by <u>James R. Holbert</u> et al., was submitted February 1 for publication in the bulletin series of the Illinois Agricultural Experiment Station, in cooperation with which the investigations reported were conducted.

A paper entitled "The Course of Acidity Changes during the Growth Period of Wheat, with Special Reference to Stem-Rust Resistance," by <u>Annie May Hurd</u>, was submitted February / for publication in the Journal of Agricultural Research.

Page proof of article entitled "The Black-Bundle Disease of Corn," by Charles S. Reddy and James R. Holbert, for publication in the Journal of Agricultural Research, was read February 2.

The article entitled "A Bacterial Stripe Disease of Proso Millet," by Charlotte Elliott, was published in the Journal of Agricultural Research, v. 26, no. 4, p. 151-150, 4 pl. October 27, 1923 (Received in January, 1924).

Department Bulletin 1183, entitled "Milling and Baking Experiments with American Wheat Varieties," by <u>J. H. Shollenberger</u>, in charge, Milling Investigations, Grain Division, Bureau of Agricultural Economics, and <u>J. Allen Clark</u>, in charge, western Wheat Investigations, Office of Cereal Investigations, was received from the Government Printing Office February 9.

Department Circular 305, entitled "Electrochemical Treatment of Seed Wheat," by <u>C. E. Leighty</u> and <u>J. W. Taylor</u>, was received from the Government Printing Office February 14.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs). (January 31) The fall-sown cat crop in this section seems to be almost entirely killed by the recent freeze. All varieties on the experiment plats are practically destroyed with the exception of Lee, Castis, and Winter Turf.

Winter barley was somewhat injured; the spring varieties which were sent to Atnens last year for fall sowing have been completely killei.

Winter wheat was injured very little.

VIRGINIA

Arlington Experiment Farm, Rosslvn (J. W. Taylor). No report.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love). (February 7) The weather has continued to be rather unusual for Ithaca; temperatures are above normal and there has been but little show. One of the heaviest snowfalls of the year occurred on February 6. During most of the winter the wheat nursery has been bare, however.

Preparations are now in progress on our exhibit for Farmers! Week which begins February 11. In this exhibit will be featured the cereals which we have been distributing in the State; and samples of seed from different growers will be on exhibit, together with information as to sources of supply. A number of lectures on the small grains will be given in the program of the week.

Mr. W. T. Craig has been taking notes on certain cat hybrids and getting material ready for spring seeding. He now is examining the grain from the many oat hybrids for which Cornellian was used as one parent. A number of these have proven to be excellent yielders and the question is to get the type of grain that will be most desirable.

Proof has just been read of an article to be published in the Journal of the American Society of Agronomy, entitled "Methods now in Use in Cereal Breeding and Testing at the Cornell University Agricultural Experiment Station," by H. H. Love and W. T. Craig. An article on "The Inheritance of Resistance to Smut," by A. F. Barney, is being copied and will be sent forward for publication within a few days. Data are being assembled for two or three other papers.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins). (January 31) The coldest weather experienced since lyl8 occurred in January; the lowest temperature recorded was 18 degrees F. Ice formed four nights in succession. Many plants that had been growing since 1913 were killed cutright. No doubt cattle throughout this section will die in large numbers for the reason that have to depend entirely upon rice straw

Plowing on the Station farm has been very much delayed because of heavy rains; in other respects the affairs at the Station are progressing favorably.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg). No report.

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler). No report.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer). No report.

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins). No report.

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Cats, S. M. Dietz). No report.

Iowa State College, Ames (Barberry Fradication, J. H. Muncie). No report.

ILLINOIS

Funk Bros. Seed Company, Blocmington (Corn Root and Stalk Rot Investigations, J. R. Holbert). No report.

Post Office Building, Urbana (Barberry Eradication, G. C. Curran). No report.

INDIANA

Purdue University Agricultural Experiment Station, Lafayette (Corn Root, Stalk, and Far Rots, G. N. Hoffer). No report.

Purdue University Agricultural Experiment Station, Lafayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains). No report.

College of Agriculture, Purdue University, Lafayette (Barberry Fradication, K. E. Beeson). No report.

OHIO

College of Agriculture, Onio State University, Columbus (Barberry Eradication, J. W. Baringer). No report.

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy).
No report.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson). No report.

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney). No report.

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker). No report.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt). No report.

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman). No report.

Agricultural Experiment Station, University Farm, St. Paul (Barberry Fradication, L. W. Melander). No report.

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger). No report.

KANSAS

Agricultural Experiment Station, Mannattan (J. H. Parker). No report.

Hays Branch Experiment Station, Hays (A. F. Swanson). No report.

COLORADO

Akron Field Station, Akron. No report.

Agricultural College, Fort Collins (Barberry Eradication, E. A. Lungren).
No report.

NEBRASKA

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel). (January report) Original survey was conducted in the Western half of Nebraska in 1923. An area comprising 27-1/2 counties was completely surveyed, a total of 4,371 bushes having been found on 265 properties. Of this number 1,367 bushes on 144 properties were found in cities and towns and 3,004 bushes on 121 properties on farms.

A total of 3,940 bushes were found on 289 properties in the course of resurvey. Of this number 3,025 busnes were found on 199 farm properties. No seedlings have been found in the western counties except near bushes on a lawn well watered in the summer months. In the eastern part of the State 2,522 seedlings were found on 20 farm properties.

Simultaneous surveys for stem rust over large and small areas were made in the last week of May and the first three weeks of June. Field men were stationed in a tier of counties from the southern to the northern border of the State. The date of the first appearance of stem rust was obtained in each county. First pustules were so scarce that often only one was found during a half day's search.

Dr. E. M. Freeman and L. W. Melander (Phytopathology 14:40 (abstract), January, 1924) recommend simultaneous surveys to locate incipient local epidemics of stem rust and overlooked parberry busnes. This system may be feasible, but a similar method tried in Nebraska this past season failed to bring the results anticipated. However, I should like to see the plan tried in other States of the barberry-eradication area in the spring of 1924.

WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, R. U. Cotter). No report.

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, L. D. Hutton). No report.

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel). No report.

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue). No report.

Dickinson Substation, Dickinson (R. W. Smith). (January 31) The ground is almost bare again after the thaw that began January 28. The ground had been bare up until December 28 and was covered by from two to three inches of snow for one month. The minimum temperature was below zero on 20 days in January and 20 degrees below on 12 days. A minimum of 27 degrees below was reached on three days. A maximum of 50 degrees above zero was reached on January 30 and 31.

Winter plats sown in grain stubble and standing corn appear to be in good condition, while plats sown in corn stubble and the nursery drilled in short stubble appeared to have suffered from the low temperatures combined with insufficient snow covering. Winter rye plats are in good condition.

There is considerable inquiry regarding Nodak wheat in this State.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.).
No report.

MONTANA

Judith Basin Substation, Moccasin (R. W. May). (January 1b) Since the latter part of December, snow has fallen to a depth of about a foot on the level, but the snow has blown into drifts three or four feet deep, leaving the ground over large areas covered with about six inches of snow. The fall of snow since December 27 has amounted to 0.95 of an inch precipitation. The minimum temperature since January 1 was 28 degrees below on January 3 and the maximum temperature 48 degrees on January 5. On seven days the temperature registered above freezing.

I hope to complete my annual report for 1925 early in February and then begin the preparation of some manuscripts for publication by the Montana Agricultural Experiment Station.

(February 1) The total precipitation in January was 0.58 of an inch, while the average precipitation for January for a period of 25 years is 0.71 of an inch. The minimum temperature for the month was 28 degrees below on January 2 and the maximum temperature 48 degrees on the 29th. The weather has moderated considerably during the last week and most of the snow, which fell earlier in the month, has melted. However, there still remains so much snow that the condition of the fall wheat can not be observed.

State College of Agriculture, Bozeman (Barberry Tradication, W. N. Christopher). No report.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe). No report.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford). No report.

OREGON

Sherman County Branch Station, Moro (D. E. Stephens). No report.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones). No report.

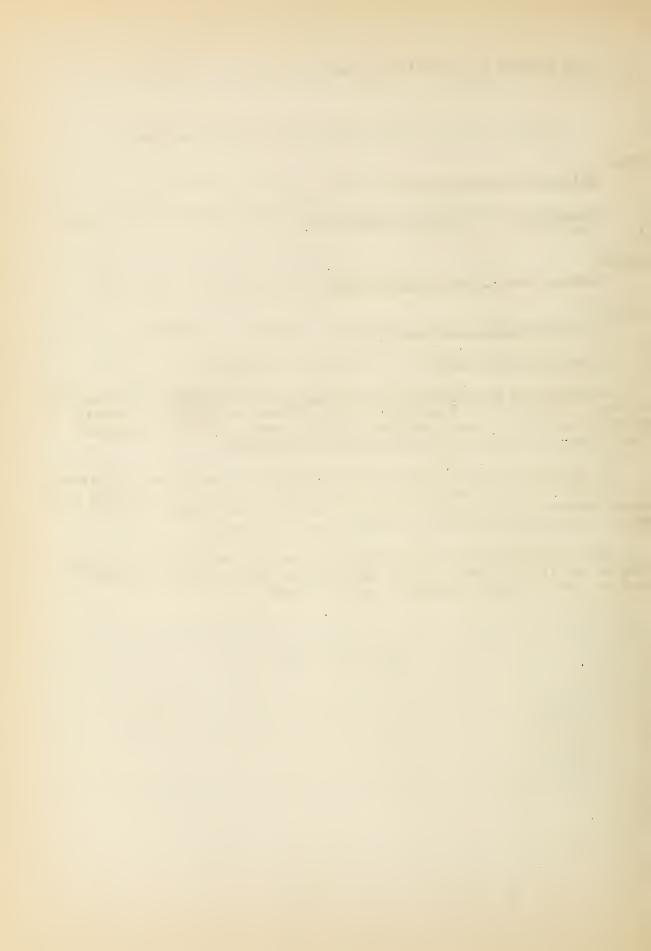
University Farm, Davis (V. H. Florell). No report.

Agricultural Experiment Station, Berkeley (F. N. Briggs). (January 19) Jenkin W. Jones, of the Biggs Rice Field Station, and Victor H. Florell, of University Farm, Davis, are here for the spring semester to continue their graduate studies at the University of California.

Up to date this has been the driest January for many years. In fact, the rainfall for this winter is far below normal, with the result that the cereal nurseries look very poor. In general, the cereal crops over the State have suffered a great deal for the want of rain.

Many farmers over the entire State report that range cattle are beginning to die for the want of feed, and that they are killing the lambs as soon as they are born in order to save the ewes.

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CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16.

February 29, 1924
Personnel (February 16-29) and Project Issue

No. 4

PERSONNEL ITEMS

A cablegram announces the arrival of Frederick D. Richey and Dr. R. A. Emerson at Buenos Aires on February 20 after a pleasant and uneventful voyage. Thomas Bregger, formerly plant breeder on the staff of the Agricultural Experiment Station, Mayaguez, Porto Rico, and now special corn expert with the Argentine Republic, will accompany Messrs. Richey and Emerson to Santiago, Chile, where they expect to arrive about March 4. According to the itinerary appearing in an earlier number of the Courier the address of the party will be the American Embassy at Santiago until March 25.

D. E. Stephens, superintendent of the Sherman County Branch Station, Moro, Oreg., returned on February 25 from a short visit to Corvallis, where he consulted with the State officials concerning manuscripts ready for the State printer.

Arthur F. Swanson, assistant agronomist in charge of the cereal experiments at the Hays Branch Experiment Station, Hays, Kans., who has been in Washington since the first of the present year, engaged in writing his report of the last season's investigations, left on February 22 on the return trip to Hays.

VISITORS

Dr. A. L. Bakke, associate professor of plant physiology, at the Iowa Agricultural College, was an Office visitor February 12. He had come to Washington to attend the hearings before Congress on the proposed establishment of a game reservation along the Mississippi River.

Myron H. Holmes, a post-graduate student in agronomy and plant physicalogy, at the Maryland Agricultural College, consulted with various Office project leaders on February 25.

Hajime Matsumoto, of The Imperial Industrial Laboratory, Osaka, Japan, was an Office visitor February 29. Professor Matsumoto is a chemist spending three months in the United States and is primarily interested in the fat and oil content of various substances, including cotton, flax, etc.

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.MANUSCRIPTS AND PUBLICATIONS.

A paper, entitled "Methods of Culturing Rusts in the Greenhouse," by E. B. Mains, was approved February 16 for publication by the Indiana Academy of Sciences.

A paper, entitled "Supernumerary Spikelets in Mindum Wheat," by <u>F. A.</u> Coffman, was approved February 27 for publication in the Journal of Heredity.

A manuscript, entitled "Studies on the Inheritance of Farliness in Wheat," by <u>V. H. Florell</u>, was submitted February 29 for publication in the Journal of Agricultural Research.

A manuscript, entitled "Factors Influencing Lodging in Corn," by Benjamin Koehler, George H. Dungan, and James R. Holbert, was submitted February 29 for publication in the bulletin series of the Illinois Agricultural Experiment Station.

A manuscript, entitled "The Progress of Barberry Eradication in Colorado", by E. A. Lungren, was submitted February 29 for publication in the Report of the Entomologist of the State of Colorado for 1923.

A paper, entitled "Albinism in Barley," by G. A. Wiebe, was approved February 29 for publication in the Journal of Heredity.

Page proof of the article, entitled "The Blooming of Wheat Flowers," by <u>C. E. Leighty and W. J. Sando</u>, for publication in the Journal of Agricultural Research, was read February 29.

Galley proof of article, entitled "Nocturnal Production of Conidia by Sclerospora graminicola," by William H. Weston Jr., was read February 29.

The paper, entitled "Cytological Studies of Infection of Baart, Kanred, and Mindum Wheats by <u>Puccinia graminis tritici</u> Forms III and XIX," by <u>Ruth F. Allen</u>, appears in the Journal of Agricultural Research, v. 26, no. 12, p. 571-604, 7 pl. December 22, 1923. Literature cited, p. 602-604. (In cooperation with the agricultural experiment station of the University of California).

The paper, entitled "The Intracellular Bodies Associated with the Rosette Disease and a Mosaiclike Leaf Mottling of Wheat," by Harold H. McKinney. Sophia H. Eckerson, and Robert W. Webb, appears in the Journal of Agricultural Research, v. 26, no. 12, p. 605-608, 8 pl. December 22, 1923. (In cooperation with the Wisconsin and Illinois agricultural experiment stations).

Department Bulletin 1209, entitled "Fffects of Selection on the Yield of a Cross between Varieties of Corn," by Frederick D. Richey, was received from the Government Printing Office February 27.



CEREAL COUPIER

Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U.S. Dept. of Agriculture (NOT FOR PUBLICATION)

Vol. 15 March 15, 1924 No. 5
Personnel (March 1-15) and Field Station (February 1-29) Issue

PERSONVEL ITEMS

Raymond O. Bulger, formerly field assistant in barberry eradication in South Dakota, has been appointed agent, effective March 16, 1924, to serve as State leader in barberry eradication, with headquarters at Brookings, S. Dak., to succeed Lynn D. Hutton, who was transferred to Washington February 15.

Jonn H. Craigie, of St. Paul, Minn., was appointed March 1 as agent in barberry eradication and rust investigation with headquarters at University Farm, St. Paul, Minn., and will fill the vacancy caused by the recent resignation of C. R. Hursh.

A. C. Dillman, agronomist in charge of flam investigations, left March 8 for Fargo, N. Dak., to collaborate with officials of the North Daketa Agricultural Experiment Station in the preparation of a joint bulletin on flam experiments. He also will confer with members of the staff of the Minnesota Agricultural Experiment Station at University Farm, St. Paul. Before returning to Washington he will visit the Northern Great Plains Field Station, Mandan, N. Dak., to arrange for future experiments with flam.

Fdmund B. Lambert, field assistant in epidemiology studies at University Farm, St. Paul, Minn., was called to Washington March) for a conference with officials of the Office.

Miss Ruth G. Noll, clerk in the Office since February 1, 1924, resigned her position March 14.

George F. Sprague was appointed March 16 as field assistant in charge of Cereal experiments conducted in cooperation with the Nebraska Agricultural Experiment Station at the North Platte Substation, North Platte, Nebr.

Richard S. Talbott was appointed March 1 as laborer to assist in the pathologic laboratory and in field emperiments at Arlington Experiment Farm.

G. A. Wiebe, junior plant breeder in charge of ceweal experiments at the Aberdeen Substation, Aberdeen, Idaho, left Washington March 7 after having spent three months in laboratory research and the proparation of his annual report and material for publication.

VISITORS

Prof. G. I. Christie, Director of the Indiana Agricultural Experiment Station, was an Office visitor March 12 to discuss problems in cooperative research.

Dr. Edward M. East, professor of genetics at the Bussey Institute, Harvard University, is spending a week in Washington in consultation with various geneticists. He was an Office visitor on March 11. Doctor East is en route to Boston from Cuba, where he and Dr. W. H. Weston, Jr. inspected a sugar plantation recently donated to Harvard University as a place for tropical research.

Harrison Fuller, executive secretary of the Conference for the Prevention of Grain Rust, and more recently occupying a similar position with the Wheat Council of the United States, was an Office visitor on March 12 to discuss the barberry eradication program. Following the closing up of the affairs of the Wheat Council and its recent dissolution, Mr. Fuller plans to spend several months in European travel, chiefly in France and Italy, sailing for the latter country on March 15. He expects to return about the middle of July and to resume his auties with the Conference for the Prevention of Grain Rust.

Laurence H. Parker, of the Massachusetts Agricultural College, Amherst, Mass., and executive secretary and editor of World Agriculture, was in Washington during the week of March 10, consulting with various officials of the Department of Agriculture and elsewhere. Mr. Parker is about to sail for Europe where he plans to spend a year in Italy, Switzerland, and France. He will attend the General Assembly of the International Institute of Agriculture at Rome in May, 1324.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Cereal Crops," by <u>Ralph W. Smith</u>, has been submitted as a contribution to the annual report of the Dickinson Substation, which will be published as a bulletin of the North Dakota Agricultural Experiment Station.

A manuscript, entitled "Puccinia graminis poae Frikss. and Henn.," by E. C. Stakman and M. N. Levine, was submitted March 11 for publication in the Journal of Agricultural Research.

Galley proof of article, entitled "Morphological and Physiological Studies on the Resistance of Wheat to <u>Puccinia graminis tritici</u>," by <u>C. R. Hursh</u>, for publication in the Journal of Agricultural Research, was read March 12.

Galley proof of article, entitled "The Better Utilization of Straw," by C. E. Leighty, for publication in the Journal of the American Society of Agronomy, was read March 1.

Page proof of reprint of article, entitled "Adjusting Yields to their Regression on a Moving Average, as a Means of Correcting for Soil Heterogeneity," by Frederick D. Richey, for publication in the Journal of Agricultural Research, was read March 15.

The article, entitled "Seed-Color Inheritance in Certain Grain-Sorghum Crosses," by John B. Sieglinger, appears in the Journal of Agricultural Research, v. 27, no. 1, p. 53-64. January 5, 1924. Literature cited, p. 64.

The article, entitled "Anchorage and Extent of Corn Root Systems," by James R. Holbert and Benjamin Koehler, was published in the Journal of Agricultural Research, v. 27, no. 2, p. 71-78, 5 pl., 1 graph. January 12, 1924. (Contribution from Illinois Agricultural Experiment Station and Office of Cereal Investigations).

The article, entitled "Adjusting Yields to their Regression on a Moving Average, as a Means of Correcting for Soil Heterogeneity," by Frederick D. Richey, appears in the Journal of Agricultural Research, v. 27, no. 2, p. 79-98, 2 fig. (graphs). January 12, 1924.

The article, entitled "The Effect of Rust Infection upon the Water Requirement of Wheat," by Freeman Weiss, was published in the Journal of Agricultural Research, v. 27, no.2, p.107-118. January 12, 1924. Literature cited, p.117-118. The investigations upon which this paper is based were conducted cooperatively by the Minnesota Agricultural Experiment Station and the Office of Cereal Investigations.

The paper, entitled "Student's Method for Interpreting Paired Experiments," by H. H. Love and A. M. Brunson, has been published in the Journal of the American Society of Agronomy, v. 16, no. 1. January, 1924.

The article, entitled "The Extraction of Nitrogeneus Constituents from Plant Cells," by W. E. Tottingham, E. R. Schulz, and S. Lepkovsky, appears in the Journal of the American Chemical Society, v. 46, no. 1. January, 1924. (This article is a contribution from the department of agricultural chemistry, University of Wisconsin, and the Office of Cereal Investigations, U. S. Department of Agriculture.)

MEMOPANDUM

Attention is called to the following Memorandum for Heads of Offices

(B. P. I. Memo. 55), dated March 6, 1924, from the Chief of the Bureau of

Plant Industry, with reference to a change of procedure in submitting

compensation papers to the Employees' Compensation Commission.

It has been the practice in the past that all notices covering injury to employees be sent direct to the Employees! Compensation Commission for consideration. The Commission has in turn dealt directly with the office involved and with the individual. This practice has only been partially successful. Papers are frequently lost in transit, individuals move about with changes in their address, some individuals are slow in submitting papers called for by the Commission, and in these and similar cases the Commission finds it necessary to call upon the Bureau for assistance in settling many cases. Frequently the injury has not come to the attention of the Bureau and their first notice is the call from the Commission

In order to correlate the handling of these compensation papers with our other personnel actions, and that we may better assist our employees in the proper and adequate presentation of their papers, kindly submit all compensation forms to the Office of the Chief of Bureau in duplicate, the original and one carbon. The original will be forwarded to the Compensation Commission and the carbon kept in the personnel record of the individual. The Employees' Compensation Commission will forward all papers for transmission through the Office of the Chief of Bureau. In the case of injury where an employee is immediately taken to a local hospital or dispensary for treatment, an appropriate form must be filled out and left with the hospital authorities, and a copy of this form should be forwarded to the Office of the Chief of Eureau.

It is believed that the foregoing procedure will eliminate some of the confusion which now obtains in the handling of employees compensation papers and be of assistance to the employees affected.

Very sincerely,

(Sgd) Wm. A. Taylor, Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Atnens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (No report)

HUMID MISSISSIPPI VALLEY STATES (South to Morth)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (March 10) In company with Mr. Landry, rice specialist in the extension service of the Louisiana State University, the writer spent two lays last week in Vermilion Parish among farmers who wish to grow soybeans. Mr. Moist near Abbeville . and Doctor Ellis near Gueydan each will grow approximately 20 acres of soybeans in cooperation with the extension service under the supervision of Mr. Landry. Other demonstrations will be made in the same Parish but on a much smaller acreage. Cattle are dying from exposure and lack of pasturage in Vermilion Parisn.

Agricultural Experiment Station, Eaton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Esperiment Station, Columbia (L. J. Stadler) (March 1) After one of the mildest Decembers on record, Massouri experienced an unusually cold January and February, particularly in three cold spells in which the temperature went well below zero. Some damage has been done to the wheat crop, although its extent over the State as a whole is not yet known. Wheat on the experiment station field is in fairly good condition. All varieties of fallsown oats seem to have winterkilled completely.

We have finished preparing cat seed and will make the first sowing early next week. Our oat seedings this year will include yield tests of varieties, Fulghum pure lines and Mnerson pure lines, date-of-seeding tests, and acclimatization experiments. During the next several years we expect to use a considerable portion of our oat nursery facilities in acclimatization studies.

We are beginning to get rather interesting preliminary results from our acclimatization trials. One of these is concerned with the relative yields of northern-grown seed cats and the progenies of the same stocks, which have been grown in Missouri for varying number of seasons. For example, in 1920 we grew some Tarly Champion oats obtained from Minnesota, retaining a quantity of the same seed in storage. In 1921 octn the original seed and the seed harvested from the 1920 crop were planted. These were in adjacent 5-row blocks with four replications, and the difference between them was striking and unmistakable. Although the northern-grown seed was a year older than the

Missouri-grown, it yielded 49.1 bushels per acre to 32.2 for the acclimatized seed. The difference was consistent in the replicate plots, as was also a noticeable difference in height and earliness.

The season of 1922 was unfavorable, particularly by reason of very late seeding. The excremaly low yields obtained, however, were surprisingly consistent with the results of 1921. The original northern-grown seed yielded 19.5 bushels per acre, thile the yields of the same stocks after one and two years growing here were 13.1 and 11.5 recpectively. The yields, although very low, were consistent in the replicate plots (20 single rod rows of each) and the differences were statistically significant. Again the original seed outyielded the addimatized, and the progeny of the 49-bushels unacclimatized crop of the preceeding year outyielded that of the 32 bushels acclimatized crop.

Because of the very unfavorable conditions of 1922 it was thought desirable to repeat the test in 1923 with the same seed instead of using that produced in 1922. The yields of the original seed and of the Missouri-grown one-year and two-year lots were 30.7, 25.8, and 22 0 respectively. Thus in all cases the original northern-grown seed has yielded more than the acclimatized seed and the seed produced by two year's culture in Missouri has given lower yields than that produced by one year's culture here. Similar results were obtained with Silvermine from Minnesota, but no significant results were obtained with Kherson from Iowa.

These results are, of course, purely indicative and would be a shaky basis for any sort of conclusion. But the indications, as far as they go, point in the direction of "running out" rather than adaptation. This season we are planning to grow the original northern-grown seed in comparison with seed grown in Missouri respectively one, two, three, and four years. We are planning to do this with 10 or 12 varieties, using the Early Champion, Silvermine, and Kherson stock mentioned above and seed of several other varieties retained from the crops of the last four years. Similar work with wheat was begun last season.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, J. H. Muncie) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Fradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, LaFayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, LaFayette (Leaf Rust Investigations, H. S. Jackson and H. B. Mains) (No report)

College of Agriculture Purdue University, LaFayette (Barberry Fradication, K. E. Beeson) (No report)

OHIO

College of Agriculture, Onio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, East Lansing (Barberry Fradication, W. F. Reddy)
(No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNFSOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (No report)

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (No report)

COLORADO

Akron Field Station, Akron

Agricultural College, Fort Collins (Barberry Eradication, E. A. Lungren)
(No report)

NEBRASKA

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, R. U. Cotter) (Nc report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, L. D. Hutton) (No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)
(No report)

Agricultural Experiment Station, Agricultural College (Barberry Fradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (March 1) The present winter thus far has been one of the mildest ever known in this section of the State. The mean temperature for November was 8.1 degrees above normal, with no snow on the ground. The mean for December was 5.0 degrees above normal with no snow until after Christmas. In January the temperature was a few degrees below normal, with about 3 inches of snow. The mean temperature for February was about 11 degrees above normal with about 3 inches of snow on the ground for 10 days. Severely cold weather prevailed during the first three weeks of January. Winter wheat was severely tested during this time as there was but little snow protection.

The ground is entirely bare now and the prospect is good for an early spring. A few farmers already have done some dragging on fall-plowed fields.

The mild weather has stimulated an interest in seed for spring sowing, and many inquiries and orders have been received for seed of Kota and Nodak wheat, Victory oats, wilt-resistant flax, and early dent corn.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.)
(No report)

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (March 1) Recent mild weather has melted most of the snow and the soil is drying rapidly. Winter wheat appears to be a little more vigorous than usual at this period. If weather conditions are favorable until the middle of April there will be a good stand of winter wheat. Winter wheat is usually weakened by the fall and early winter conditions while the actual winterkilling usually occurs between the latter part of February and first part of May. There are, therefore, many chances yet for the stand of winter wheat to be reduced.

The annual report from this station for 1923 was completed and mailed about the middle of Tebruary. Data are now being assembled for a publication by the Montana Agricultural Experiment Station.

The minimum temperature for February was 17 degrees below on the 19th, while the maximum temperature was 57 degrees on the 17th. The total precipitation for the month was 0.27 inch as compared to 0.50 inch as an average of 26 years.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

TDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Mcscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (February 12) With the exception of a week early in January, when we had a minimum temperature of five degrees below zero, we have had a very mild pleasant winter. For the past two weeks we have had warm weather and the ground is now about dry enough to plow. Winter wheat is in excellent condition throughout all of eastern Oregon.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (March 7) Cereal crops at Davis are making a satisfactory growth. Stands which were ununiform and poor earlier in the season are now in fairly good condition. A very recent rain is helping crops generally over this part of the State. While not a very heavy rain it is sufficient for the present.

Recently a peculiar condition was observed in the barley plats concerning which I hope to know more. Quite a number of scattered dead plants was noticed in almost all plats, while in certain spots almost all of the plants were dead. A number of the dead and partially dead plants were pulled and forwarded to Dr. Humphrey for examination. It is possible that the trouble may be due to cut worms rather than to some disease, although no worms were observed.

Commercial grain fields are in soci condition and the prospects are favorable for a good crop.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)



CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16

March 31, 1924.
Personnel (March 16-31) and Project Issue

No. 6

PERSONNEL ITEMS

Keller E. Beeson, assistant pathologist, and State leader of barberry eradication in Indiana since November 1, 1922, resigned from the service on March 31, 1924, to accept a position in the Division of Soils and Crops of the Extension Department of Purdue University at La Fayette, Ind.

N. Ray Carmichael, assistant to the pathologist in charge of barberry eradication, resigned his position on March 22 and left for Lamoni, Iowa, where he has assumed the duties of business manager of Graceland College. Mr. Carmichael has been appointed collaborator in barberry eradication in order that he may from time to time advise with the State leader of barberry eradication in Iowa and his field assistants.

J. Allen Clark, agronomist in charge of western wheat investigations, has been authorized to give a talk before the annual convention of the National Macaroni Manufacturers' Association to be held at Niagara Falls, N. Y., July 8, 9 and 10. Mr. Clark's subject will be "Improving the Quality of American-Grown Durum Wheat."

Dr. Harry V. Harlan, agronomist in charge of barley investigations, returned to Washington March 18 from his year of travel in north Africa, India, and Abyssinia.

Sailing from New York on February 28, 1923, Doctor Harlan arrived in London on March 10 and by March 25 was in Algiers, where he found seed of native barley in the southern cases but was uncertain of the origin of the barley of the plateau because of the importation of seed from outside sources following a series of poor harvests. On March 29 he visited Timgad, the site of an ancient Roman city, and on March 30 and 31, Bishra. He wrote on April 3 from Tuggurt, an casis in the northern part of the Sahara, that he had there obtained several samples of wheat and barley. At El Kantara, Algeria, where he arrived about April 10, he found difficulty in obtaining samples of local varieties of black barley.

On June 5 he arrived at Simla, India, where he planned his itinerary for further travel in India and in Abyssinia. From Ganderbal, Kashmir, Doctor Harlan wrote on June 18 of his success in obtaining considerable plant material and in arranging with officials for the sending of additional specimens in the future. About the middle of July he left Srinagar, the capital of Kashmir, for Bombay, from which port he sailed for western Europe to spend several weeks before going to Abyssinia at the time of the grain harvest.

On October 6 Doctor Harlan sailed from Marseilles, France, on the S. S. Chambord for Djibuti on the Red Sea, traveling from there by train to Addis Abeba, the capital of Abyssinia. At this place he consulted with officials concerning plans for agricultural explorations over a period of two or three months in the interior of Abyssinia. His schedule was somewhat interrupted by a short but severe illness while in Addis Abeba. However, by reason of the courtesy of the Regent of Abyssinia he was enabled to perform an arduous journey without great difficulty.

The circumstances attending Doctor Harlan's year of travel were at times exceedingly trying, particularly because of unsanitary conditions and the lack of proper and wholesome food. He has great reason to be gratified with the results of his painstaking and arduous labors in searching for plant material.

- Dr. H. B. Humphrey, pathologist in charge of cereal disease investigations, left March 25 for Ames, Ia., to attend a meeting of State leaders and assistants in barberry eradication and rust epidemiology studies. He also will confer with C. S. Reddy and J. R. Holbert concerning corn root-rot problems at Bloomington, Ill., and at La Fayette, Ind., he will discuss cooperative investigations on leaf rust and corn root-rot with officials of the Purdue University Agricultural Experiment Station. Doctor Humphrey expects to be back in Washington by April 5.
- Dr. F. E. Kempton, pathologist in charge of barberry eradication, and Lynn D. Hutton, assistant, left Washington March 25 to attend a meeting of State leaders in barberry eradication and rust epidemiology at Ames, Iowa. They also will travel in the interests of barberry eradication in Ohio, Indiana, Wisconsin, Iowa, Minnesota, Illinois, and South Dakota. Before his return to Washington, Doctor Kempton will confer with experiment station officials in West Virginia concerning the occurrence of wild barberry (Berberis canadensis) in that State.
- Wayne E. Leer, of La Fayette, Ind., formerly field assistant in barberry eradication, was appointed March 24 as State leader of barberry eradication in Indiana, to succeed Keller E. Beeson, whose resignation becomes effective March 31.
- H. H. McKinney, pathologist in the cooperative cereal disease investigations conducted at Madison. Wis., who has been in Washington for the past three months engaged in special research in connection with the rosette disease of wheat, left March 21 to return to his headquarters at Madison, Wis. On the way he stopped at Yonkers, N. Y., to confer with Dr. Sophia H. Eckerson, at The Thompson Plant Research Institute, concerning joint manuscripts now in process of preparation.

Frederick D. Richey, agronomist in charge of corn investigations, wrote from Buenos Aires on February 28 concerning his inspection of corn experiments conducted by the Argentine Government and on private estates in the vicinity of Buenos Aires. He and Doctor Emerson expected to take the train for Santiago, Chile, on March 2, accompanied by Thomas Bregger, special corn expert of Argentina.

A cablegram from Santiago, dated March 19, announced that the party was sailing for Antofagasta, Chile, on that date.

Miss Virginia W. Sargent, clerk, resigned her position at the termination of March 31.

VISITORS

- Dr. F. D. Fromme, plant pathologist at the Virginia Agricultural Experiment Station, Blacksburg, Va., recently consulted with the Office pathologists concerning methods of eradicating the wild barberry (Berberis canadensis) in Virginia.
- Prof. Fuyuwo Kagawa, a research scholar sent out by the Japanese Government, who is visiting a number of agricultural institutions in the United States, spent several days of the week of March 19 conferring with agronomists of this Office.
- Ed. Kopac, a farmer and merchant, of Omaha, Nebr., was an Office visitor March 25. Mr. Kopac is growing 1,500 acres of hard red winter wheat in western Nebraska, He divides his attention between that interest and several mercantile enterprises and has a very deep appreciation of the poems of the Plains written by John G. Neimann.
- D. H. Otis, formerly assistant to the dean of animal industry at the University of Wisconsin, and now director of the agricultural commission of the American Bankers! Association, with headquarters at Madison, Wis., was an Office visitor March 31.

MANUSCRIPTS AND PUBLICATIONS

The following manuscripts have been submitted for publication in the Journal of Agricultural Research:

The Resistance of Oat Varieties to Stem Rust, by W. W. Mackie and Ruth F. Allen. March 25.

The Genetic Relation between <u>Triticum dicoccoides</u> and a Similar Morphological Type Produced Synthetically, by <u>H. H. Love</u> and <u>W.T.Craig</u>. March 28.

Segregation and Correlated Inheritance in Crosses between Kota and Hard Federation Wheats, for Rust and Drought Resistance, by <u>J. Allen Clark</u>.

March 29.

Hairy-Necked Segregates in Wheat-Rye Hybrids, by <u>C. E. Leighty</u> and <u>J. W. Taylor</u>. March 31.

An Ascigerous Stage and Synonymy for <u>Fusarium moniliforme</u>, by <u>Grace O. Wineland</u>. <u>March 31</u>.

A manuscript, entitled "Markton, an Oat Variety Immune from Covered Smut," by D. E. Stephens, E. F. Gaines and T. R. Stanton, was submitted March 31 for publication in the Department Circular series.

Galley proof of article, entitled "Studies on the Parasitism of <u>Urocystis tritici</u> Koern., the Organism causing Flag Smut of Wheat," by <u>Robert J. Noble</u>, for publication in the Journal of Agricultural Research, was read March 11.

Galley proof of article, entitled "Effects of the Modified Hot-Water Treatment on Germination, Growth, and Yield of Wheat," by V. F. Tapke, for publication in the Journal of Agricultural Research, was read March 11.

Galley proof of article, entitled "Wheat Scab and Corn Root Rot caused by Gibberella saubinetii in Relation to Crop Successions," by Benjamin Koehler, J. G. Dickson, and J. R. Holbert, for publication in the Journal of Agricultural Research, was read March 20.

Galley proof of Farmers' Bulletin 1240, entitled "How to Grow Rice in the Sacramento Valley," by Jenkin W. Jones, was read March 27.

Page proof of article, entitled "Experiments with Flag Smut of Wheat and the Causal Fungus, <u>Urocystis tritici</u> Kcke.," by <u>Marion A. Griffiths</u>, for publication in the Journal of Agricultural Research, was read March 27.

The article, entitled "The Black-Bundle Disease of Corn," by Charles S. Reddy and James R. Holbert, appears in the Journal of Agricultural Research, v. 27, no. 4, p. 177-205. January 26, 1924. (Received March 27, 1924) (The investigations here reported were conducted in cooperation with the Funk Bros. Seed Co., Bloomington, Ill., and the Wisconsin and Illinois Agricultural Experiment Stations).

A revised edition of Ohio State University Agricultural College Extension Service Bulletin 13, entitled "Fradication of Common Barberry and Black Stem Rust in Ohio," by John W. Baringer and Wilmer G. Stover, bears date of February, 1924:

An article, entitled "Methods now in Use in Cereal Breeding and Testing at the Cornell University Agricultural Experiment Station," by H. H. Love and W. T. Craig, appears in the Journal of the American Society of Agronomy, v. 16, no. 2, p. 109-127, 8 fig. February, 1924. (In cooperation with the Office of Cereal Investigations).

The paper, entitled "The Better Utilization of Straws," by C. E. Leighty, appears in the Journal of the American Society of Agronomy, v. 16, no. 3, p. 213-224. March, 1924.

The paper, entitled "Disease Resistance as a Factor in the Control of Plant Diseases," by James G. Dickson, appears in the 1923 Transactions Wisconsin State Horticultural Society, p. 123-131. [1924].

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PROJECT REPORTS

OAT INVESTIGATIONS

(T. P. Stanton, Agronomist in Charge)

OMT VARIETY RENAMED

The new oat variety which was discovered by Dr. E. F. Gaines, of the Washington Agricultural Experiment Station, Pullman, Wash., to be immune from covered smut, and to which the name "Carleton" was given, has been renamed "Markton." The original naming of this strain of smutimmune oats was reported in the Official Record of the U. S. Department of Agriculture for May 16, 1923. This renaming was necessary on the ground that it is contrary to the rules of nomenclature of the American Society of Agronomy to name a crop variety for a living person. It therefore was thought advisable to make the change before the variety became widely distributed under that name, and in the future it will be designated as "Markton." It has been accessioned under Cereal Investigations No. 2053.

The Markton is a high-yielding, midseason variety with culms very hairy at the nodes, large drooping panicles, and rather long, slender, yellowish-white kernels. Its immunity from covered smut is a most valuable character which renders it potentially important as a variety from which to breed other smut-immune varieties.

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CFREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR PUBLICATION)

Vol. 16
April 15, 1924
Fersonnel (April 1-15) and Field Station (March 1-31) Issue

No. 7

PERSONNEL ITEMS

The following are the names of men appointed on April 1 as field assistants in barberry eradication, with headquarters at Columbus, Chio: Byron B. Beck, Bernard N. Cryder, Edson J. Hambleton, Halsey H. Lafferty, Donald P. Limber, Benjamin F. Sellers, and Charles O. Violet.

Theodore C. H. Beyerhoffer, was appointed April 1 as unskilled laborer to assist with the cereal experiments that are being conducted in cooperation with the Nebraska Agricultural Experiment Station at North Platte, Nebr.

Guy R. Bisby, professor of plant pathology at the Manitoba Agricultural College, who is cooperating with this Office in rust investigations, has been authorized to go from Winnipeg, Manitoba, to LaFayette. Ind., to assist in the preparation of a cooperative manuscript on rusts of cereals and related plants. He will remain at LaFayette for about a month and will then return to Winnipeg.

Charles E. Chambliss, agronomist in charge of rice investigations, left Washington April 6 for Crowley, La., where he will spend some time in an inspection of the rice experiments at the Rice Experiment Station. He also will visit other points in Louisiana and in South Carolina, North Carolina, Florida, Georgia, and Alabana, to confer with officials of experiment stations and with farmer cooperators who are growing rice without irrigation.

Dr. Harry V. Harlan will leave Washington April 16 for Sacaton, Ariz., where he will study the barley nurseries and supervise the harvest of the varieties. He also will confer with officials at experiment stations in California, Oregon, Illinois, and Kansas. He will return to Washington about the end of June. Miss M. L. Martini will assist Doctor Harlan in the study of the barley introductions at Sacaton.

F. P. Pichey, agronomist in charge of corn investigations, wrote from Santiago on March 16 concerning his various visits in the surrounding country, including El Verjel, Temuco, Gorbea, and Cura-Cautin, where corn culture was studied. Mr. Richey and his party were given every courtesy by Mr. D. L. Bullock and his associates who are operating a mission school under the auspices of the Board of Foreign Missions of the Methodist Church. Mr. Bullock has lived for many years among the Indians of El Verjel and vicinity. Mr. Richey and Dr. Emerson expected to leave for Peru and Bolivia on the next steamer.

W. H. Tisdale, pathologist in charge of smut investigations, left April 15 for Sacaton, Ariz., to inspect the barley introductions in the cereal nursery from the standpoint of cereal diseases. He also will collect rust and Helminthosporium material in the vicinity of Los Angeles and will inspect experiments with bunt, or stinking smut, at Berkeley, Calif., Corvallis, Oreg., Pullman, Wash., and Moscow, Idaho. At Lincoln, Nebr., Poctor Tisdale will confer with experiment station officials concerning seed-treatment studies, and at Granite City, Ill., and St. Louis, Mo., he will obtain data on flag smut of wheat. He will return to Washington about the middle of June.

VISITORS

Prof. G. W. Hendry, in charge of the agronomic investigations at University Farm, Davis, Calif., who has spent the greater part of the past year in a tour of the world, was an Office visitor April 10. He gave the Office staff a very interesting résumé of the impressions he had gained of the present status of agriculture, particularly cereal breeding, in the leading countries of Europe, as well as in Hawaii, Japan, China, and the Fhilippines. Professor Hendry left San Francisco in July, 1923, and returned via New York on April 6 of this year.

Prof. Charles W. Hungerford, in charge of cooperative stripe-rust investigations at the Idaho Agricultural Experiment Station, Moscow, Idaho, is Commissioner for the West of the Advisory Board of American Plant Pathologists, and sends an advance notice of a joint meeting of the Pacific Division of the American Phytopathological Society and the Northwest Society of Entomologists, Horticulturists, and Plant Pathologists. The meeting has been so timed that the British scientists in attendance at the Toronto meeting, who are planning to take a trip to the West, may attend this meeting.

Professor Hungerford writes that this meeting is to be held at Penticton, British Columbia, the last week in August and will be one of the most important scientific meetings ever held in the Northwest. The exact date for the meeting has not been fixed. As soon as it is known more definitely when the British scientists arrive on their trip, the exact date will be announced.

MANUSCRIPTS AND PUBLICATIONS

A brief article, entitled "Sowing the Flax-Wheat Mixture," by A. C. Dillman, was approved April 10 for publication in the Dakota Farmer.

A paper, entitled "The Relation of Common Earberry Eushes to the Occurrence of Stem Rust of Wheat and other Cereals in Chio," by John W. Earinger, was transmitted April 15 for publication as a bulletin of the Ohio State Department of Agriculture.

An article, entitled "The Inheritance of Pubescent Nodes in a Cross between two Varieties of Wheat," by H. H. Love and W. T. Craig, was submitted April 15 for publication in the Journal of Agricultural Research.

Galley proof of Farmers: Bulletin 11114, entitled "Rosette Disease of Wheat and its Control," by A. G. Johnson, H. H. McKinney, R. W. Webb, and C. E. Leighty, was read April 3.

Page proof of paper, entitled "Morphological and Physiological Studies on the Resistance of Wheat to Fuccinia graminis tritici Erikss. and Henn.," by C. R. Hursh, for publication in the Journal of Agricultural Research, was read April 3.

Page proof of Department Bulletin 1210, entitled "Summary of Literature on Bunt, or Stinking Smut of Wheat," by Horace M. Woolman and Harry B. Humphrey, was read April 4.

Page proof of article, entitled "Effects of the Modified Hot-Water Treatment on Germination, Growth, and Yield of Wheat," by <u>V. F. Tavke</u>, was read April 10.

FIFLD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (April 4) Weather conditions in March were not very favorable for winter wheat. The spring has been somewhat backward and on April 1 we had one of the biggest snowfalls of the year. Most of it has now disappeared however. There seems to be little prospect of making any spring planting for several days yet.

All the seed of spring grains is ready, so that when the ground is fit for seeding we can proceed rather promptly. The size of the oat nursery will be about the same as it was for 1923. The barley nursery will also be about the same. There are a good many new selections from the hybrids made by Doctor Bussell for the purpose of producing smooth-awned strains.

The wheat and oats sown in the greenhouse have been very slow to develop and it will not be possible to begin making any hybrids before next week.

The number of demonstrations put out in various parts of the State will be about the same in extent as in previous years.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (April 11) Work on the Station is progressing favorably. Everything is in readiness for final preparation before seeding. The March seedings in the date-of-seeding experiment have been made.

Flax varieties seeded March 26 were up to a good stand by April 1.

Rice farmers of southwestern Louisiana are showing a keen interest in the results obtained at this Station with the use of commercial fertilizers and from the growing of the Biloxi soybean in rotation with rice.

Mr. Edwy. S. Landry, the rice specialist of the extension division of the Louisiana State University, and his associates, are having no trouble in interesting demonstrators to put into practice a rotation with the Biloxi soybean recommended by this Station. Last year only a few acres were seeded to the Biloxi soybean in this section; this year it is estimated that over 1,500 acres will be grown under demonstration and several thousand additional acres will be grown independently. This interest also is indicated by the number of visitors and letters received. In the period from January 24 to April 8, 1924, inclusive, there were 92 visitors, and 167 letters were written, and 165 bulletins and circulars were distributed.

The demonstration agent of Acadia Farish is making every effort to get the results of the Station before the farmers of this parish; the writer gave four talks to groups of farmers in the past two months.

Agricultural Experiment Station, Betor Rouge (H. Stoneberg) (April 4) In February the seed was put up ready for planting the corn experiments when the weather became favorable. We started planting on March 7 and planted intermittently until the 25th, on which day we finished. We had several days of cool, wet weather after the first planting so that the corn was three weeks in coming up. However, a fairly good stand was obtained. Birds are present in large numbers and it is necessary to guard the corn plats continually.

Prof. A. F. Kidder, agronomist of the Louisiana Agricultural Experiment Station, resigned his position March 31.

MISSOURI

Agricultural Experiment Station. Columbia (L. J. Stadler) (April 1) The weather in March has been precominantly cold and wet, and conditions have been very unfavorable for spring seeding of small grains. We have not yet been able to make our regular sowing of oats on the Station field, although the small seedings required in the date-of-seeding experiments have been made on schedule. We hope to make the main seeding this week.

The yields of corn varieties and varietal hybrids on the Station field last season are shown in the following table. The hybrid seed was produced by detasseling in a small seed plat the preceding season, Boone County White being the pollen parent of all of the hybrids.

	Average Yield
Variety or Hybrid	(Eu. per Acre)
Commercial White x Boone County White	65.68
Cartney x Boone County Thite	59.30
St. Charles Yellow x Boone County White	59.29
St. Charles White x Boone County White	60.48
Reid Yellow Pent x Boone County White	63.46
Leaming x Boone County White	68.14
Silvermine	33.45
Reid Yellow Dent	53,52
Boone County White	59.60
Commercial White	63.62

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Distz) (No report)

Iowa State College, Ames (Barberry Eradication, J. H. Muncie) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, LaFayette (Corn Root, Stalk, and Ear Rots, G. N. Hotfer) (No report)

Purdue University Agricultural Experiment Station, LaFayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Furdue University, LaFayette (Barberry Eradication, K. E. Beeson) (No report)

OHIO

College of Agriculture, Chio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, East Lausing (Barberry Eradication, W. F. Reddy)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, C. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stalman) (No report)

Agricultural Experiment Station, University Ferm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (No report)

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (March 17) The writer returned to Hays March 5 after two and one-half months in the Office in Washington, D. C., and Manhaltan, Hans.

The early part of March was quite spring-like at Hays. Sufficient moisture was in the ground to stimulate spring growth of wheat. The soil had broken down, however, to a rather fine texture, owing to alternate freezing at night and thating by day, and was becoming favorable for soil blowing.

A light snow fell on March 10 and had melted by the 13th. Another followed on the 14th and 15th. The total amount of moisture from these two snows was 0.51 inch. On March 16 a driving blizzard of wet snow fell from the east. The snow on the level is from 6 to 15 inches deep. The precipitation from this snow will amount to about one inch. North and south highways are blocked in many places. However, the snow will prove of great value to the wheat, as it will practically insure against soil blowing.

The writer returned from a trip to Akron, Colo., on March 13 and found practically all of northeastern Colorado under a blanket of snow. The same is true for northwestern Hansas. While theat generally has not made much spring growth the stand is good. There is a big supply of reserve moisture from last fall and with the additional precipitation late this winter, the prospects for wheat are excellent at this time as far as climatic conditions are concerned.

The Hessian fly threatens the wheat crop over a considerable portion of western Kansas. A number of inquiries have been received concerning the advisability of plowing badly infested fields and seeding to spring crops.

Seeding of spring barley and oats will be delayed about 10 days because of snow. Two early dates of seeding of barley, oats, and spring wheat were made on February 15 and March 1.

. At the present time seed is being prepared for spring planting.

(April 1)

The last of the snow is melting today. There was a rather heavy freeze this morning. However, we believe spring will soon be here.

The ground for the oats and barley nursery is being prepared this afternoon and we hope to plant by tomorrow. Seeding this year is 15 days later than usual.

There is an abundance of moisture in the soil. Wheat is not quite so far along as in normal years but the stand and vigor are good. So far there has been no winterkilling.

CCLORADO

Akron Field Station, Akron

Agricultural College, Fort Collins (Barberry Eradication, E. A. Lungren)
(No recort)

NEBRASKA

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, R. U. Cotter) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)
(No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (April 1) Mild weather and lack of snow which have prevailed during most of the winter have continued to the present time except that in the past 10 days there have been several snow squalls. On March 28 and 29 about six inches of snow fell. This is melting rapidly and much of the moisture is soaking into the ground, which was partly thawed out when the snow fell.

The total precipitation for the month was 1.05 inches. The maximum temperature was 49 degrees on March 2 and 25. A minimum of -4 degrees was recorded on March 31.

Winter wheat seems to have been winterkilled to some extent, but at the present time more than half of the plants appear to be alive in the plats and a smaller percentage of the plants in the nursery are still alive. Dry windy weather in April often kills much of the winter wheat that is weakened by the severity of the winter. The moisture from the recent snows will help to prevent further killing of the wheat. Winter rye is in excellent condition.

Except for more cold weather, field operations should begin next week.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.)

(April 2) The winter of 1923-1921 has been exceptionally mild. The extreme minimum temperature for the winter was -30° on January 4, 1924. The average extreme minimum temperature for the past ten years is -34°.

Precipitation for the past six months was less than half of normal. Precipitation for the months of October, November, and December, 1923, was only 0.96 of an inch and for the months of January, February, and March only 0.56 of an inch. During the past ten years the average precipitation for the months of October, November, and December was 1.71 inches, and for the months of January, February, and March, 1,42 inches. Only 0.14 of an inch was recorded

in December, 1923, and only 0.03 of an inch in January, 1924. There was little or no snow or the ground most of the time during the winter, and the ground appears exceptionally dry for this time of year. There were frequent snow flurries in March and a small blizzard or March 25, but the total precipitation recorded for the month of March was only 0.28 of an inch.

The winter-wheat nursery plantings on fallow ground apparently are all dead. Rye sown as part of the same planting apparently has survived. There was considerable winterkilling of winter wheat sown in stubble.

Maximum temperature for March, 52 degrees on March 25; minimum 3 degrees on March 7, 9, and 30.

MONTANA.

Judith Pasin Substation, Moccasin (R. W. May) (No report)

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (March 19) I returned to Berkeley from Biggs last night. The weather is dry and field work in the rice area is starting. The precipitation from October 1, 1923, to February 29, 1924, was 9.32 inches, compared with a 11-year average for the same period of 16.46 inches. Grain on the heavy land is still in good condition but on lighter soils it is beginning to suffer.

The Station land for this year's crop is now being plowed.

University Farm, Davis (V. H. Florell) (April 8) On Saturday, April 5, I went to Davis by automobile in company with Drs. Alsberg and Taylor and Messrs. Wright and Stewart of the Food Research Institute, Stanford University, who wished to visit the experimental wheat plantings. We found the grain in commercial fields along the way looking fairly good. However, it showed the effects of drought and was backward on account of the cool season. The plantings at Davis were found to be in good condition and the prospects are favorable for a good average crop.

Quite a number of the barley varieties have begun heading, and a number of the early varieties of wheat also are beginning to head. None of the oats varieties is yet beginning to head. The hand weeding of the barley plats on the South Armstrong field is nearing completion and should be finished in about another week. Professor Madson has tried spraying the mustard with iron sulphate on a portion of this area, spraying only one-half of a portion of the series. The spraying appears to be quite effective in checking the growth of the mustard, although it is not completely killing it. The growing grain shows the effect of the spray by slight browning of the tips of the leaves.

At the University Farm it was found that a strict quarantine was being made against the foot and mouth disease. Thus far, no evidence of the disease has been reported from the animal husbandry flocks at the University Farm.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

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DATE OF ISSUANCE OF CEREAL COURIER.

Beginning with the issue of May 10, the Cereal Ccurier will appear three times a month, namely, on the 10th, 20th, and last day of the month. It will be greatly appreciated if, beginning May 1, until further notice, all agronomic and pathologic field stations will mail reports promptly on the 15th and last days of the month.

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

April 30, 1924
Personnel (April 16-30) and Project Issue

No. 8

PERSONNEL ITEMS

L. D. Hutton, assistant in barberry eradication, returned to Washington April 21 after a field trip in the barberry eradication area.

Miss Madeline C. McArdle was transferred from the Bureau of Animal Industry to this Office on April 7, to take the place left vacant by the resignation of Miss Virginia W. Sargent.

Frederick C. Richey and Dr. R. A. Emerson arrived at Antofagasta, Chile, on March 21 and left on the 24th for La Paz, Bolivia. They expected to leave for Cuzco on April 1, about ten days ahead of schedule. A cablegram just received announces that they will leave Lima, Peru, on April 30 for New York.

Mrs. Margaret C. Rowe, clerk, resigned her position at the termination of April 22; having been employed since January 16, 1924.

The following appointments have been made in barberry eradication since April 15:

Illinois: Franklin E. Fobes; Minnesota: Stuart J. Dunn; Wisconsin: Lellen S. Cheney and Arthur M. Knutson.

VISITORS

J. W. Conner. Secretary-Treasurer, Wisconsin Grain and Warehouse Commission, of Superior, Wis., called at the Office April 16 to consult about cooperating in the barberry eradication campaign through advancing some funds to help match the conditional Federal appropriation.

Dr. L. R. Jones, professor of plant pathology of the University of Wisconsin, was an Office visitor April 29.

Miss L. M. Venable, formerly of this Office, and now connected with the extension division of the University of North Carolina, was an Office visitor April 22.

MANUSCRIPTS AND PUBLICATIONS

An article, entitled "Flaxseed Production," by T. E. Stoa and A. C. Dillman, was submitted April 5 for publication as a cooperative bulletin by the North Dakota Agricultural Experiment Station.

An article, entitled "Aecial Stages of the Leaf Rusts of Rye, Puccinia dispersa Erikss., and of barley, P. anomala Rostr., in the United States," by E. B. Mains and H. S. Jackson, was submitted April 19 for publication in the Journal of Agricultural Research.

A brief article, entitled "Bacterial Blight of Pye," by <u>C. S. Reddy</u>, <u>James Godkin</u>, and <u>A. G. Johnson</u>, was submitted April 19 for publication in the Journal of Agricultural Research.

A manuscript, entitled "Spring Crops for Fastern Oregon," by D. E. Stephens, was submitted April 21 for publication as a cooperative bulletin by the Oregon Agricultural Experiment Station.

A manuscript, entitled "The Furrow Method of Sowing Wheat in the Judith Basin," by <u>Palph V. May</u>, was submitted April 22 for publication as a cooperative bulletin by the Montana Agricultural Experiment Station.

An article, entitled "A Method of Detecting Mixtures in Manred Wheat Seed," by <u>C. O. Johnston</u> and <u>C. W. Bower</u>, was approved on April 25 for publication in the Journal of the American Society of Agronomy.

A paper, entitled "Equipment and Methods for Studying the Relation of Soil Temperature to Diseases in Plants," by R. W. Leukel, was approved April 25 for publication in Phytopathology.

Galley proof of paper, entitled "Results of Rice Experiments at Cortena, 1923, and at the Biggs Rice Field Station, California, 1922-1923," by Carroll F. Dunshee and Jenkin W. Jones, to be published as a cooperative bulletin by the California Agricultural Experiment Station, was read April 4.

Galley proof of Department Bulletin 1239, entitled "Studies in the Physiology and Control of Bunt, or Stinking Smut, of Wheat," by <u>Horace M. Woolman</u> and <u>Harry E. Humphrey</u>, was read April 21.

Page proof of Farmers' Bulletin 1240, entitled "How to Grow Rice in the Sacramento Valley," by Jenkin W. Jones, was read April 17.

The article, entitled "The Blooming of Wheat Flowers," by <u>C. E.</u>
<u>Leighty</u> and <u>W. J. Sando</u>, appears in the Journal of Agricultural Research,
v. 27, no. 5, p. 231-214, 2 fig. February 2, 1924. Literature cited, p. 244.
(Received April 22, 1924)

The article, entitled "Barberry Eradication in Illinois," by <u>F. E. Kempton. G. C. Curran and E. D. Griffin</u>, appears in the Transactions of the Illinois State Academy of Science 16: 198-209, 4 fig. 1923. The volume was received April 29, 1924.

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBBLICATION)

Vol. 16

May 10, 1924.
Personnel (May 1-10) and Field Station (April 1-30) Issue

No. 9

PERSONNEL ITHMS

Charles E. Chambliss, agronomist in charge of rice investigations, returned May 6 from his inspection of rice experiments in the South.

F. D. Richey, agronomist in charge of corn investigations, wrote on April 20 from Arequipa, Peru, that he was preparing for shipment the corn seed collected in that country by Poctor Emerson and himself, while Doctor Emerson was about to leave for Huancayo to make a further search for specimens, before going on to Lima to take the steamer "Essequibo" for Panama and change for Los Angeles, Calif. Mr. Richey takes the same steamer from Arequipa on April 28, with New York as his destination. Both Mr. Richey and Doctor Emerson are satisfied with the results of their search for maize grown at high altitudes,

MANUSCRIPTS AND PUBLICATIONS

Galley proof of the cooperative bulletin by J. R. Holbert, et. al., to be published by the Illinois Agricultural Experiment Station, was read during the week of May 1.

Page proof of revision of Farmers' Bulletin 1124, entitled "The Brown-Spot of Corn with Suggestions for Its Control," by W. H. Tisdale, was read May 2.

Page proof of Department Bulletin 1239, entitled "Studies in the Physiclogy and Control of Bunt, or Stinking Smut, of Wheat," by Horace M. Woolman and Harry B. Humphrey, was read May 6.

A paper, entitled "The Inheritance of Smut Resistance in Crosses of Certain Varieties of Oats," by A. F. Barney, appears in the Journal of American Society of Agronomy, v. 16, p. 283-291, 4 fig. April, 1924. (The investigations upon which this article is based were conducted in cooperation between the Cornell University Agricultural Experiment Station and the Office of Cereal Investigations.)

The article, entitled "Development of Wheat Plants from Seminal Roots," by Lowell F. Locke and J. Allen Clark, appears in the Journal of American Society of Agronomy, v. 16, p. 261-268, 4 fig. April, 1924. (Mr. Locke is assistant agronomist at Woodward, Okla., Office of Dry-Land Agriculture Investigations.)

Department Bulletin 1210, entitled "Summary of Literature on Bunt, or Stinking Smut, of Wheat," by <u>Horace M. Woolman</u> and <u>Harry B. Humphrey</u>, was received from the Government Printing Office May 3.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (April 22) The weather in the winter of 1923-1924, though not severe as measured by low temperatures, caused some injury to winter oats and winter barley. The damage apparently was done by alternate freezing and thawing of the soil, causing some heaving of the plants; this was particularly noticeable in the plats including the experiments for the treatment of oat and barley smuts. The spring-stand data taken on these plats show no indication of increase in vigor as the result of treating.

Oat varieties, such as Fulghum, Kanota, Ferguson, and Aurora, show the effects of winter injury. Kanota appears to have survived with a higher stand than did Fulghum. The more hardy oat varieties give promise, however, of good yields.

Some of the new selections of winter barley in plat tests show appreciable reduction in stand owing to winter injury, but a few appear promising. The earlier strains of barley should be in head in about one week.

Wheat and rye are in good condition. Wheat sown October 30, 1923, made very little winter growth and it is likely that this seeding will show a greater reduction in yield than it has in the past years of the experiment. Leaf rust of wheat is now evident on the earlier seedings of wheat.

Many F_1 , F_2 , and F_3 aegilops-wheat hybrids are now in head in the green-house, showing a great variety of plant forms. Mr. Sando has found certain evidence of natural crossing having occurred in the greenhouse in 1923 on his F_1 aegilops-wheat hybrids.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (April 30) The weather for April has been rather unseasonable, as it has remained very cool; and rains have come frequently enough to make it difficult to prepare the soil for spring seeding. The hybrid oat nursery and some of the barley were sown on April 11 and 12, but the soil on the farm where the rod-row material and other plats are to be sown has been so wet that it has been impossible to work it until the last two or three days. Most of the barley was sown April 29 and 30; it is now raining again and very likely the oats will not be sown until the week of May 5.

The greenhouse material is coming along very well and some new wheat, oat, and barley hybrids are being made. Mr. Dorsey is now collecting considerable material in connection with his cytological investigations from plants sown for that purpose.

A manuscript is being prepared describing the experiments with oats in the last nine years. This will be presented for publication as a bulletin of the Cornell University Agricultural Experiment Station.

Final adjustments in connection with the plans for the new plant industry building are being made. This building, in addition to supplying sufficient office and laboratory space for the department of plant breeding, also has a large store room and a very large work room which will make it possible to conduct the activities of the department in one place instead of in several, as at present.

Some of the outlying plats of oats, particularly those in Delaware County, have been seeded.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (No report)

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (L. C. Burnett) (April 28) All of our spring seedings were completed in due season. The nursery, including all of Stanton's oats and Clark's wheats, was sown on April 19.

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, J. H. Muncie) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (April report) Publicity material on barberry eradication was mailed to about 5,000 rural schools in Illinois in April. The Conference for the Prevention of Grain Rust furnished two colored plates. A bulletin, a letter, and a list of study questions were enclosed. The pupils were requested to look for plantings of common barberry and report them to the teacher. Reports of several plantings have been received.

In April the city of Aurora, in Kane County, was resurveyed by the State Leader and F. E. Fobes. More than 40 original plantings were found. Very few sprouting bushes were located.

A number of men have been interviewed for positions as field assistants in barberry eradication. Plans are being made to resume field operations on the original survey early in June.

INDIAHA

Purdue University Agricultural Experiment Station, LaFayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, LaFayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, LaFayette (Parberry Fradication, K. E. Beeson) (No report)

OHIC

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHTGAN

Agricultural College, East Larsing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (May 6) Field operations began again in Wisconsin on May 1. A second survey of Walworth County was started by L. S. Cheney and A. M. Knutson, who were appointed on May 1.

Barberries started to leaf out last week, although the weather has been rather cold until this month. Infection was easily noticed on barberries at Black Earth on April 29.

It is expected to complete the original survey this season, as well as a second survey of several counties. The foot scouting of the areas of escaped bushes at Black Earth to determine the limits of this area will be continued again this summer. Surveys of the areas of escaped bushes at Glen Haven, Trempoaleau, Milton Junction, and others will be included this summer.

Many members of the scouting force of last year expect to be back again this summer at the close of the school term.

Publicity material has been mailed to the rural school teachers in the territory where the original survey will be conducted this year.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (April report) The spring campaign has already begun. However, the roads are in very bad condition because of excessive precipitation and much cloudy weather.

We expect to find rusted barberry in a few days, as the telial spores have been viable for about ten days and the damp weather has been favorable for germination. Every effort will be made to check up the first infections of rust in order to run down the sources of infection. All the available agencies will be asked to cooperate. The State Department of Agriculture has assured its cooperation, which will be a great help.

Publicity is being stressed. A circular letter was prepared for 1,500 township weed inspectors. This letter, together with Plate 1 and 2 put out by the Conference for the Prevention of Grain Rust, was sent to the office of the State Commissioner of Agriculture to be mailed to all the township weed inspectors in the grain-growing counties. Besides this, the mailing of a circular letter to about 38,000 farmers is about completed. Replies and specimens are being received.

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (May 2) The weather has been cool and damp. The soil is well filled with moisture and the prospects are excellent for a good crop of small grains as well as of fruit.

The first date-of-seeding plats were seeded on April 15 as per schedule and emerged to fair stands by the 25th and 26th. The second date-of-seeding plats were seeded yesterday.

From April 17 to 21 the writer accompanied E. F. Chilcott on a trip to Oklahoma City, Lawton, and Elk City. Along the entire route small grains looked exceptionally well. Alfalfa also is making rapid growth and both upland and bottom fields will make a heavy first crop.

The record of precipitation for 1924 to date is as follows: January, 0.03 of an inch, February, 0.81 of an inch, March, 2.87 inches, and April, 3.14 inches, or a total of 6.85 inches. Maximum temperature for April was 87° on the 8th; minimum 33° on both the 17th and 26th.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (April 16) The first 15 days of April have been quite favorable for tillage work. The weather for the most part was warm and all spring-sown crops germinated and came up readily.

The bulk of the spring seeding on the cereal project was made between April 1 and 5. Within a week the various crops had emerged to full stand. The spring-grain nursery is made up of more than 1,000 selections. Thirty-six different varieties of barley, oats, and spring wheats are grown in the varietal test.

The writer left Hays April 7 by automobile for Akron, Colo., and by April 12 had finished the spring seeding for the Office of Cereal Investigations at the Akron Field Station. The trip covered about 650 miles; wheat prospects were encouraging along the entire distance. The Hessian fly is a menace, however, as far as a distance of 125 miles west of Hays. Nearer Akron there has been some winterkilling but not sufficient to make it a limiting factor in the production of a good crop.

The wheat acreage is somewhat reduced. Low prices and the rust epidemic of last year are partly responsible for the smaller acreage. One farmer expressed the opinion that because of low prices for farm products and high labor costs, it was necessary to grow such crops as could be handled with little or no hired help. Consequently corn is becoming a favorite crop in that section where wheat prodominated a few years ago.

There is a great deal of corn in the country. On nearly every farmstead there are large piles of corn awaiting the sheller. The heavy snow in March over western Kansas, Nebraska, and eastern Colorado prevented the farmers from moving their crops. The average price of corn is about 58 cents.

Wheat is just beginning to start its spring growth in the vicinity of Akron. At Hays practically all of the fields are covered with a heavy growth.

(May 2)

The precipitation for the month of April was 1.50 inches, or 1.25 inches below normal. The climatic conditions have been quite favorable in all respects for spring growth of crops.

All plats and rod rows have been labelled and all roadways properly trimmed. Seed-bed preparation is now under way for sorghum and corn planting.

Wheat is making good progress, the soil containing sufficient moisture to stimulate vegetative growth. The official condition of wheat over the entire State of Kansas is placed at 89 per cent and as being uniformly promising except in three or four southeastern counties. The northwestern block of counties in Kansas, comprising about 11,700 square miles, has a rather large infestation of Hessian fly, the average damage being estimated at from 10 to 15 per cent.

Members of the Kansas State Board of Agriculture, representatives from the Kansas Agricultural College, and prominent stock men of the State, were official visitors at the Twelfth Annual Cattlemen's Round Up, which was held at the Hays Branch Experiment Station, Saturday, April 26. About 800 people were present. On the preceding day, 32 competing high-school teams were present for the stock-judging contest. The latter is becoming one of the big features of the Round Up program.

The outstarding results obtained from the feeding experiments was the use of Sudan grass. Ten grade Haweford cows fed on Sudan hay alone for 152 days gained 64 pounds, including the weight of the calves. Their feed consumption was slightly better than two tons per head. The calves, nine of which were dropped by the ten cows by Round Up time, were thrifty and vigorous. Another test showed that dairy cows fed on Sudan hay, silage, and grain, produced slightly more milk than the same cows when alfalfa was substituted for Sudan, the difference in production being slightly less than one pound of milk per cow daily. Without exception the cows gained in body weight when changed to alfalfa bay and lost weight when on Sudan hay. These cows were made up of two lots, the first lot being fed alfalfa as roughage for 20-day periods, then Sudar hay for 20 days, and alfalfa again for 20 days. The second lot was started out with Sudan hay for the first period, then alfalfa was alternated.

COLORADO

Ahron Field Station, Akron (April 26) In the past winter the weather has been unusually cold at times. Temperatures much below zero were recorded in the latter part of December. The winter's snowfall apparently has been fully up to normal, if not above, and, judging by reports, winter wheat has survived the winter in fair condition. The winter nursery apparently is in good condition. It is reported that in April the snowfall on several occasions was sufficient to prevent great immediate danger from soil blowing.

A. F. Swanson, assistant agronomist, in charge of the cereal experiments at the Hays Branch Experiment Station, Hays, Kans., went to Akron early in April to seed the following spring cereals:

> 60 plats wheat varieties 48 oat 48 11 barley emmer 4 TF Ħ flax flax-wheat mixture

Between 375 and 400 nursery rows of spring wheat, barley, and oats.

The winter wheat seedings at Akron this season comprise more than 200 plats and 5,000 mursery rows. With the exception of those in 1923, the seedings of cereals at Akron exceed those of any year since the Station was established 17 years ago. With the favorable moisture conditions which apparently have existed throughout the winter and early spring, the prospects for the cereals at this time are possibly above normal.

Agricultural College, Fort Collins (Barberry Eradication, E. A. Lungren) (No report)

NEBRASKA

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

WYCMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, R. J. Cotter) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel) (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (April 16) Because of snowstorms and frequent light showers of rain field operations have been delayed until about the same time as last spring. Some seeding was done in this vicinity last week, but on the Substation most of the land was too wet.

The first seeding in the flax tillage and date-of-seeding experiment was finished on April 14. There was a mild blizzard on the 15th, but the snow has melted today. It is expected that seeding of the rotations and the cereal plats will be begun tomorrow.

The soil is in good condition owing to the abundant rains last fall and the snows in March. Precipitation this month has been frequent but below normal in quantity.

A large percentage of the winter wheat in the varietal plats has survived the winter both in wheat stubble and in standing corn. That sown in nursery rows shows more winterkilling, but there are some live plants in most of the rows. Winter rye is in excellent condition.

The acreage of flax and of corn and other forage crops probably will be larger than usual in this section of the State.

(May 1)

In April the weather was very changeable with frequent snowstorms. Last week these storms were of almost daily occurrence and greatly interfered with field operations. The last snowfall, on April 25, supplied considerable moisture which delayed field work until the 28th. The total precipitation for the month was about 1 inch, which is slightly below normal.

Varietal plats of wheat were sown April 22 and 23, oats on April 24, and barley April 28.

The second seeding in the flax tillage and date-of-seeding experiment was made today. The first seeding made April 14 has not yet emerged.

The land and seed for the cereal nursery are being prepared and seeding of the nursery will begin in a few days.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (April 16) Most of the time in the first half of April the weather was mild and favorable for field operations. A considerable acreage of spring wheat already has been sown on farms in the vicinity. The early spring plowing on the Station farm is completed, and plats were prepared several days ago for sowing wheat, oats, and barley. The seeding of wheat, which was to begin April 15, was postponed because of threatening weather, which developed into a small blizzard. The snow is melting fast, so it probably will be possible to seed before the end of the week.

A few plants of winter wheat in the winter-hardiness nursery are apparently alive, contrary to a previous report that winterkilling was complete.

The first seeding in the flax date-of-seeding-and-tillage experiment was made April 15.

Maximum temperature for the first half of April was 73° on April 7; minimum 16°, April 9; precipitation 0.28 of an inch.

(May 2)

In the latter half of April considerable snow and rain interfered with field operations.

Seedings in the date-of-seeding-and-tillage experiment were made April 15 and May 1. Flax sown April 15 is just emerging.

The wheat varietal plats were sown April 18. A shower of rain that same night should have insured a prompt, even germination, but the wheat has not yet emerged.

The oat varietal plats were sown April 22. A heavy fall of very wet snow beginning April 25 made further field work practically impossible until April 30.

The barley varietal plats were sown April 30. The flax and cereal mixtures were sown May 1.

The land for the wheat nurseries has been laid out and marked ready for seeding on Saturday, when school boys will be available.

Maximum temperature for the last half of April was 75° on April 23; minimum, 23° on April 19; precipitation 1.40 inches.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (April 17) Weather conditions in March and the first half of April were very favorable for winter wheat, which apparently has survived the winter with almost perfect stands.

Snowfalls were recorded on 21 days in March and on eight days in the first half of April. The total precipitation recorded in March was 0.86 of an inch, 0.04 of an inch more than average, while the precipitation recorded in the first half of April was 0.75 of an inch.

Weather conditions have preverted any field work this spring. The average date of sowing the varietal spring wheats from 1909 to 1923, inclusive, was April 24, but it will not be possible to sow the varieties until after that date this year because of unfavorable weather conditions.

(May 1)

Fair weather during the last week or ten days permitted of considerable field work. All of the spring nursery was sown from April 22 to 26, inclusive. All of the spring grain varieties in plat areas, except flax and corn, were sown on April 30 and May 1. The seeding of the flax will be delayed purposely about a week in order to destroy a large number of young weeds before sowing the flax.

Winter wheat survived the winter with exceptionally good stands and is now making rapid growth.

April was a very cloudy month, 18 cloudy days being recorded. The total precipitation recorded, however, was only slightly more than one-half of the average. The precipitation recorded in April was 0.87 of an inch, while the average precipitation for April in 26 years was 1.34 inches. The minimum temperature in April was 16 degrees on the 24th; maximum, 63 degrees on the 22nd.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (April 24) Seeding of all of the variety plats has been completed. The moisture content of the soil is satisfactory and crops should be up in a short time.

Seeding of more than 7,500 rows of nursery material was completed on April 22.

The winter wheat nursery looks well. Winter barley does not survive the winter at Aberdeen. The survival of the varieties grown (Utah Winter and Tennessee Winter) was about 20 per cent.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (April 28) Fall-sown crops in eastern Oregon are in good condition at the present time. The winter was unusually mild and there was no damage to winter wheat from winterkilling. Some fall-sown spring wheats were completely winterkilled on the Station in early January, when there was a temperature of five degrees below zero with no snow covering. A field of fall-sown Federation wheat in the south end of Sherman County was injured during this cold weather, but the extensive sowing of this variety in Umatilla County in the fall of 1923 came through the winter in excellent condition.

The total precipitation at Moro from September 1, 1923, to April 30, 1924, was only 7.30 inches, or nearly two inches less than normal. Winter wheat, most of which is thick and rank, will need considerable rain to make normal yields. Winter wheat sown in June and July, of which there were several thousand acres sown by farmers in Sherman County in 1923, is in very poor condition. It suffered last fall for lack of moisture and appears now to be further suffering from drought. Wheat sown at the normal time for winter wheat planting is still in excellent condition.

All plantings of spring grain on the Station farm were completed by April 1. The spring grains have emerged with generally good, uniform stands.

The last two weeks in April were cold and windy with several killing frosts. While probably no serious damage has been done to the winter wheat crop, fruit and garden crops have been injured in many sections of eastern Oregon. Winter rye on the Station which is just heading probably will be injured by frost. Several spring barley varieties also appear to be severely injured. The lowest temperature recorded at Moro was 23 degrees on April 23. Temperatures as low as 16 degrees have been reported from Umatilla County.

The nursery work on the Station, under the direction of B. B. Bayles, has been greatly enlarged this year. In addition to the large grain nursery at Moro, five other nurseries in Columbia Basin counties have been sown mainly to determine the value for the different sections of eastern Oregon of some of the newer smut-resistant and hybrid-wheat varieties.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (April 28) The end of the semester at Berkeley is nearly at hand and I plan to be back at Davis May 1. It has been a very interesting winter, although a great deal of hard study was required, especially in the course in biochemistry. I have been going to Davis every Saturday for the past three or four weeks and will be very glad to return there permanently.

In general the cereal crops in the Sacramento Valley are not in very good condition, but the plantings at Davis look very promising and should make an average crop with the moisture at present in the soil. Along the railway between Berkeley and Davis grain is very short in many fields and shows some yellowing. In one or two fields it was noticed that the barley is beginning to ripen; this probably is California Mariout.

Early varieties of wheat in the experimental plantings are now fully headed and midseason and late varieties are beginning to head. I have made a number of emasculations for several crosses, but most of the varieties to be crossed are not yet sufficiently advanced. Most barleys now are also fully headed. The Cape x Coast hybrid is just beginning to head. One variety among the foreign introductions was beginning to ripen last Saturday. Several of the oats varieties also were beginning to head. The oats are beginning to show the effect of the drought more than other nearby plantings. The reason for this is rithat they were sown on rather light land which does not retain the moisture.

Very little evidence of cereal disease has been observed. Rhynchosporium of barley, which is usually abundant at this time of the year, is rather scarce although it may be found without very much trouble on susceptible varieties.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

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CEREAL COURIER

Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR FUBLICATION)

Vol. 16

May 20, 1924.
Fersonnel (May 11-20) and Field Station (May 1-15) Issue.

No. 10

PERSONNEL ITEMS

Dr. G. N. Hoffer, pathologist in charge of the investigation of root, stalk, and ear rots of corn, in cooperation with the Furdue University Agricultural Experiment Station at LaFayette, Ind., was authorized by the Secretary of Agriculture to testify at a hearing before the Federal Trade Commission in Chicago, May 12, in the proceedings entitled "Federal Trade Commission vs. Royal Baking Powder Company."

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, left May 12 for Knoxville, Tenn., to take notes on and harvest the wheat varieties grown in experiment plats in cooperation with the Tennessee Agricultural Experiment Station, and to confer with officials of the Station. He also will look over the wheat experiments of cooperating farmers at Lincolnton, N. C. At St. Louis, Mo., and Granite City, Ill., he will inspect the cooperative flag-smut experiments and will then proceed to Sacaton, Ariz., to take notes on the wheat introductions in the special wheat nurseries at the Cooperative Testing Station.

Erederick D. Richey, agronomist in charge of corn investigations, returned to Washington on May 14, having arrived in New York the day before on the S. S. "Essequibo." He and Dr. R. A. Emerson traveled together from Lima as far as Cristobal, where they arrived May 5. Doctor Emerson sailed from Cristobal on the S. S. "Kroonland" on May 8, expecting to reach Los Angeles, Calif., by the 16th.

The trip through South America was very successful. Something over 200 samples of corn (maize) were collected, comprising a vide diversity of type and adaptation. Nearly two weeks were spent in Argentina, about the same length of time in Chile, about nine days in Bolivia, and four weeks in Peru.

The appointment of <u>Lule P. Vassar</u>, formerly agent in the cooperative cereal investigations and experiments at University Farm, St. Paul, Minn., was terminated May 16.

VISITORS

James T. R. Sim, of Cape Province, Union of South Africa, who has recently received a B. S. degree in agriculture from the University of Illinois and has spent the past few months at the Kansas Agricultural College, was an Office visitor May 19 and 20. He expects to leave next week for his home in Cape Province to accept a position in agronomy at the Elsenberg School of Agriculture, Mulder's Vlei, Cape Province, Union of South Africa.

MANUSCRIPTS AND PUPLICATIONS

A manuscript, entitled "Pistillody in Wheat Flowers," by <u>C. E. Leighty</u> and <u>W. J. Sando</u>, was approved May 14 for publication in the Journal of Heredity.

A paper, entitled "Effect of Tillage on Wheat Foot Rot in Kansas from 1920 to 1923," by L. E. Melchers and M. C. Sewell, was approved May 19 for publication in the Journal of the American Society of Agronomy.

Page proof of article, entitled "The Course of Acidity Changes during the Growth Period of Wheat with Special Reference to Stem-Rust Resistance," by Dr. Annie May Hurd, was read May 19.

The paper, entitled "Morphological and Physiological Studies on the Resistance of Wheat to <u>Puccinia graminis tritici</u> Erikss. and Henn.," by C. R. Hursh, appears in the Journal of Agricultural Research, v. 27, no. 6, p. 381-412, 2 pl., 1 fig. February 9, 1924. Literature c.ted, p. 408-411. (The number was received May 15). (The investigations upon which the data are based were conducted in cooperation between the Minnesota Agricultural Experiment Station and the Office of Cereal Investigations).

The article, entitled "The Effect of Fertilizers on the Development of Stem Rust of Wheat," by E. C. Stakman and O. S. Aamodt, appears in the Journal of Agricultural Research, v. 27, no. 6, p. 341-380, 3 pl., 4 fig. February 9, 1924. Literature cited, p. 377-379. (The number was received May 15). (The investigations upon which the data are based were conducted cooperatively by the Minnesota Agricultural Experiment Station and the Office of Cereal Investigations).

U. S. Dept. Agr. Bulletin 1197, entitled "Experiments with Emmer, Spelt, and Einkorn," by John H. Martin and Clyde E. Leighty, was received from the Government Printing Office May 17.

The paper, entitled "Experiments with Flag Smut of Wheat and the Causal Fungus, <u>Urocystis tritici Kcke.</u>," by <u>Marion A. Griffiths</u>, appears in the Journal of <u>Agricultural Research</u>, v. 27, no. 7, p. 427-450, 3 pl., l graph. February 16, 1924. (The number was received May 20).

The article, entitled "Studies on the Parasitism of <u>Urocystis</u> tritici Koern., the Organism Causing Flag Smut of Wheat," by <u>Robert J. Noble</u>, formerly collaborator of the Office of Cereal Investigations, appears in the Journal of Agricultural Research, v. 27, no. 7, p. 451-490, 3 pl., 2 fig. February 16, 1924. (The number was received May 20).

FIELD STAITON CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs). No report.

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor). No report.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love).
No report.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins). (May 13) Work on the Station is progressing nicely. "e are having favorable weather for seeding, and, if it continues, almost all planting will be done by the end of this week.

Agricultural Experiment Station, Baton Rouge (H. S. Stoneberg). No report.

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler). No report.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer). No report.

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins). No report.

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz). No report.

Icwa State College, Ames (Barberry Eradication, J. H. Muncie). No report.

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Fot Investigations, J. R. Holbert). No report.

Post Office Building, Urbana (Barberry Eradication, G. C. Curran). No report.

INDIANA

Purdue University Agricultural Experiment Station, LaFavette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer). No report.

Purdue University Agricultural Experiment Station, LaFayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains). No report.

College of Agriculture, Purdue University, LaFayette (Barberry Eradication, W. E. Leer). No report.

OIHO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer). No report.

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy).
No report.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson). No report.

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney). No report.

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker). No report.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt). No report.

Agricultural Experiment Station, University Farm, St. Paul (Stem Pust Investigations, E. C. Stakman). No report.

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander). No report.

GREAT PLAINS AREA (South to North)

OKTAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger). (May 17) The weather has continued very cool for this time of the year, with the result that small grains are making good growth but row crops, such as corn and kafir, are backward.

The second date-of-seeding plats, which were drilled in on May 1, emerged to stands in eight and nine days. The third date-of-seeding plats were seeded according to schedule on May 15.

There is quite a demand for kafir seed this spring, with indications that there will be quite an acreage of grain sorghums; there is a shortage of good viable dwarf mile seed in this vicinity.

Maximum temperature for May to date, 89° on May 4; minimum, 34° on both the 10th and 11th. Precipitation for May, 0.35 of an inch in two showers.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Farker). No report.

Hays Branch Experiment Station, Hays (A. F. Swanson). (May 15) The first 15 days of May have been cold and windy, with only 0.05 of an inch of precipitation; consequently, crop growth has been slow.

All of the sorghum seed has been made ready for sowing. The greater part will be seeded with the approach of warmer weather. The first date of seeding the combined date-of-seeding and varietal experiment was May 14. Two later dates of seeding will be made. Seventy different varieties and strains of sorghums are included in the varietal test this year, the representatives of the Office of Forage Crop Investigations and the Office of Cereal Investigations having combined their experiments at this Station. The new plan will permit of three dates of seeding for all of the selections.

Plans are being worked out for the sorghum nursery work.

COLORADO

Akron Field Station, Akron. No report.

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren).
No report.

NEBRASKA

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel). No report.

WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, R. U. Cotter). No report.

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger). No report.

MORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel). No report.

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayove). No report.

Dickinson Substation, Dickinson (R. . Smith). (May 10) Seeding has been delayed by frequent snowstorms. The last and biggest one came on May 6, and delayed field work until today. Varietal plats are sown with the exception of flax and proso and nursery seeding should be finished about next Tuesday, May 13.

Morthern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.). No report.

MONTANA

Judith Basin Substation, Moccasin (R. W. May). No report.

State College of Agriculture, Bozeman (Barberry Eradication, W. M. Christopher). No report.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe). Mo report.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford). No report.

OREGON

Sherman County Branch Station, Moro (D. E. Stephens). (Way 16) The weather in the first week in May was dry and cold. The second week it continued dry with unusually high temperatures. On the 11th and 12th the maximum temperature was 91 degrees, the highest temperature ever recorded in May at this Station. During this hot weather a strong east wind damaged the winter wheat considerably. All winter wheat now is suffering severely from drought, some of the grain on the shallow ground being burned beyond recovery. A good rain the next week or ten days will insure fair yields, but with continued dry weather the winter-wheat crop in most of this county will be almost a failure.

The total precipitation for the months of March, April, and May to date has been only 0.65 of an inch.

The drought seems to be prevalent over the entire State, being especially severe in sections east of the Cascade Mountains.

Winter wheat on the Station is heading, with indications that much of it will be too short to bind.

CALIFORNIA

Biggs Rice Field Station, Figs (J. W. Jones). (May 10) The rice on the Station has all been sown with the exception of that in the date-of-seeding experiment, and all of it has been irrigated once and some of it twice.

The weather in the past three weeks has been favorable for germination and growth of rice. Most of the rice has germinated well and some of it is beginning to emerge.

The rice acreage in California this year probably will be just about the same as for last year. We have had a very dry winter and spring, and the snowfall in the mountains was far below normal. There is considerable talk of a water shortage in the rice area, and it may materialize before fall; but I hope there will be plenty of water for all.

The grain crops on the lighter lands are badly in need of rain, but on the heavy adobe soils these crops are still in fair condition.

The hay crop probably will be large this year, for no doubt many will harvest their grain for hay as a result of the drought.

University Farm, Davis (V. H. Florell). (May 15) Commercial grain fields in the Sacramento Valley are in bad condition because of the shortage of moisture in the past season. It is said that this is true also in other parts of the State. It is estimated that there will be from 25 to 40 per cent of a normal crop. Most of the fields in this locality were plowed and sown in the winter, which accounts in part for the prospective crop shortage. Grains on fallow, on the other hand, are in fairly good condition and should make a fair crop.

The condition of the experimental plantings of grain, which are all on fallowed land, is very good except in one portion of the field on the south Armstrong tract where the soil is more or less sandy. All varieties of barley and oats are fully headed, while a few of the late varieties of wheat in the classification and foreign nurseries are in various stages of heading. A few varieties of barley are fully ripe and a considerable number of others have begun to ripen.

Quite a number of rye-wheat crosses as well as wheat-wheat crosses are being made this season. This work will be completed tomorrow.

I have just returned from Berkeley after attending the commencement exercises and formally receiving the degree of M. S. in Genetics. The subject of my thesis is "Studies on the Inheritance of Earliness in Wheat." I appreciate very much the opportunity for taking the work leading to this degree and wish to thank you for the encouragement you have given and are still giving for future work.

Agricultural Experiment Station, Berkeley (F. N. Briggs). No report.



CEREAL COURIER

Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR PUBLICATION)

Vol. 16

May 31, 1924.
Personnel (May 21-31) and Project Issue.

No. 11

PERSONNEL ITEMS

J. Allen Clark, agronomist in charge of western wheat investigations, left Washington May 28 for Manhattan and Hays, Kans., to visit the cooperative wheat experiments. From there he will proceed to Davis, Calif., to spend about two weeks in the cooperative wheat breading nursery at the University Farm. M. A. McCall, recently appointed agronomist to assist the Cerealist in the administration of the cereal agronomy investigations, and T. R. Stanton, agronomist in charge of oat investigations, will meet Mr. Clark at Davis; from there Mr. Clark, accompanied by Mr. Stanton, will go to Corvallis and Moro, Oreg., to visit the cooperative cereal experiments. Mr. Clark also will visit Aberdeen, Idaho, Logan, Utah, Laramie and Cheyenne, Wyo., and North Platte and Lincoln, Nebr., to confer with Station officials and inspect wheat experiments and study varieties and hybrids in nurseries. He will then proceed to Niagara Falls, N. Y., to give a talk on improving the quality of American-grown durum wheat before the annual convention of the National Macaroni Manufacturers' Association to be held July 8, 9, and 10. Returning to the Middle West Mr. Clark will continue his study of the cooperative wheat investigations at University Farm, St. Paul, Minn.; Fargo, Mandan, and Dickinson, N. Dak.; Moccasin, Havre, and Bozeman, Mont.; and Sheridan, Wyo., and consult with State and other officials at these points concerning future plans. He will return to Washington about the first of September.

Dr. F. E. Kempton, pathologist in charge of barberry eradication and his assistant, L. D. Hutton, left May 30 on a three-day automobile trip to study the distribution of barberry bushes and the occurrence and spread of stem rust in Lancaster and several other counties in southern Pennsylvania.

Max A. McCall, formerly superintendent of the Adams Branch Experiment Station, Lind, Wash., has been given an appointment, effective June 1, 1924, as agronomist to assist the Cerealist in the administration of the agronomic division of the Office of Cereal Investigations, including planning and supervision of field, greenhouse, and laboratory research at Washington, D. C., and on cooperative and independent stations in various parts of the United States.

Mr. McCall was graduated from the Oregon Agricultural College in 1910 with the B. S. degree and received his M. S. degree at the Washington State College in 1922. He was instructor in agriculture in the Davemport High School, Davenport, Wash., from 1910 to 1911; instructor in agronomy at the Oregon Agricultural College from 1911 to 1912; instructor in agriculture at the Klamath County High School, Klamath Falls, Oreg., from 1912 to 1914; county agriculturist, Klamath County, Oregon, in 1914; in charge of field demonstrations and investigations of the Dry Land Department of the State College of Washington from 1914 to 1915; in charge of the Waterville Demonstration Farm, Waterville, Wash., in 1915; and superintendent of the Adams Branch Experiment Station at Lind, Wash., from October 1, 1915 to the present time.

Mr. McCall will leave Lind on June 10 to make a tour of inspection of the cereal investigations at cooperative and independent field stations and will not come into Washington until some time in the fall.

T. R. Stanton, agronomist in charge of oat investigations, will leave Washington June 3 to visit points in western States for the purpose of studying cooperative experiments with cats, to confer with Station officials regarding plans for the continuation of experiments, and to investigate farm practice in methods of harvesting and handling the oat crop. He will go first to Manhattan and Hays, Kans., and Logan, Utah. In California Le will meet J. Allen Clark and M. A. McCall and accompany them in an inspection of the cooperative cereal investigations at Berkeley, Biggs, and Davis; he also will go to Oregon with Mr. Clark to visit the agricultural experiment station at Corvallis and the Sherman County Branch Station at Moro. At Aberdeen, Idaho, Mr. Stanton will inspect the large cooperative breeding nursery. He will then proceed to the North Platte Substation, North Platte, Nebr., and then to Ames, Ia., where he will spend a few days in a study of the breeding and classification nurseries of oats and assist in their harvest. After visiting points in North and South Dakota and Minnesota in the interests of cat investigations he will return to Washington about August 1.

Dr. W. H. Tisdale, pathologist in charge of smut investigations, returned to Washington May 22 after a trip of five weeks .n the interests of smut investigations. His first stop was at the Cooperative lesting Station at Sacaton, Ariz., where he found no diseases new to this country on the grain introductions (wheat, oats, and barley), although there was some smut, rust, and stripe diseas of barley. He also visited the State experiment station at Mesa, Ariz., where the grains were in excellent condition, there being no diseases worth mentioning From there Doctor Tisdale went to the vicinity of Los Angeles, Calif., where grains were in poor condition generally because of dry weather; he collected specimens of Helminthosporium on fox-tail and found rusts on grasses. Berkeley he conferred with State and Federal officials concerning general cooperative cereal disease investigations and outlined plans for future work on cereal smuts. At Davis, in the same State, he inspected the cooperative cereal smut nurseries. He then proceeded to Corvallis, Oreg., where he conferred with Station officials on the cooperative cereal smut nurseries. Both at Davis, Calif., and Corvallis. Oreg., grains were developing very nicely but were beginning to show need of rain. At Moro, Oreg., where the smut nursery was inspected, the grains were suffering severely from lack of water. Those in the

cereal nursery were not affected so much as those in the larger plats but were beginning to show the effect of the drought. At Pullman, Wash., the cooperative smut nursery was found in fine condition; here the grains were not suffering so severely from lack of rain. A stop was made at Moscow, Idaho, to confer with C. W. Hungerford, agent in stripe-rust investigations. The spring cereals had been damaged considerably by dry weather, which had prevented satisfactory germination.

Doctor Tisdale's next stop was at Lincoln, Nebr., where he conferred with Dr. G. L. Peltier and inspected his grain nurseries. At St. Louis, Mo., and Granite City, Ill., he took notes on the flag-smut experiments, in which most of the wheats were badly winterkilled and some completely killed. Almost no smuts had developed in any of these wheats, which means that so far as smut tests are concerned the past year's work is a loss.

VISITORS

Mr. J. Tochinai, Chief of the Agriculture Office of the South Manchuria Railway Company, Darien, Manchuria, personally conducted by Mr. Odga, a student of botany at Johns Hopkins University, was an Office visitor May 27, seeking information on crops suited to conditions in Manchuria and desiring samples of cereals.

Dr. L. H. Pammel, head of the department of botany of the Iowa State College, called at the Office May 29 in the interests of the cooperative barberry eradication campaign.

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MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Relative Susceptibility of Selections from a Fulghum-Swedish Select Cross to the Smuts of Oats," by G. M. Reed and T. R. Stanton, was submitted May 51 for publication in the Journal of Agricultural Research.

Galley proof of Farmers' Bulletin 1429, entitled "Emmer and Spelt," by John H. Martin and Clyde E. Leighty, was read May 29.

Page proof of article, entitled "<u>Puccinia graminis pose Erikss.</u> and Henn.," by <u>E. C. Stakman and M. N. Levine</u>, for publication in the Journal of Agricultural Research, was read Mey 27.

Page proof of Farmers' Bulletin 1414, entitled "The Rosette Disease of Wheat and its Control," by A. G. Johnson, H. F. McKinney, R. W. Webb and C. E. Leighty, was read May 28.

N. Dak. Agr. Exp. Sta. Bul. 178, entitled "Flaxseed Production," by T. E. Stoa and A. C. Dillman, was received May 22. (The investigations on which these data are based were conducted in cooperation between the North Dakota Agricultural Experiment Station and the Office of Cereal Investigations.)

U. S. Dept. Agr. Bul. 1239, entitled "Studies in the Physiology and Control of Bunt, or Stinking Smut, of Wheat," by <u>Horace M. Woolman</u> and <u>Harry B. Humphrey</u>, was received from the Government Printing Office May 23.

PROJECT REPORTS

WESTERN WHEAT INVESTIGATIONS

(J. Allen Clark, Agronomist in Charge.)

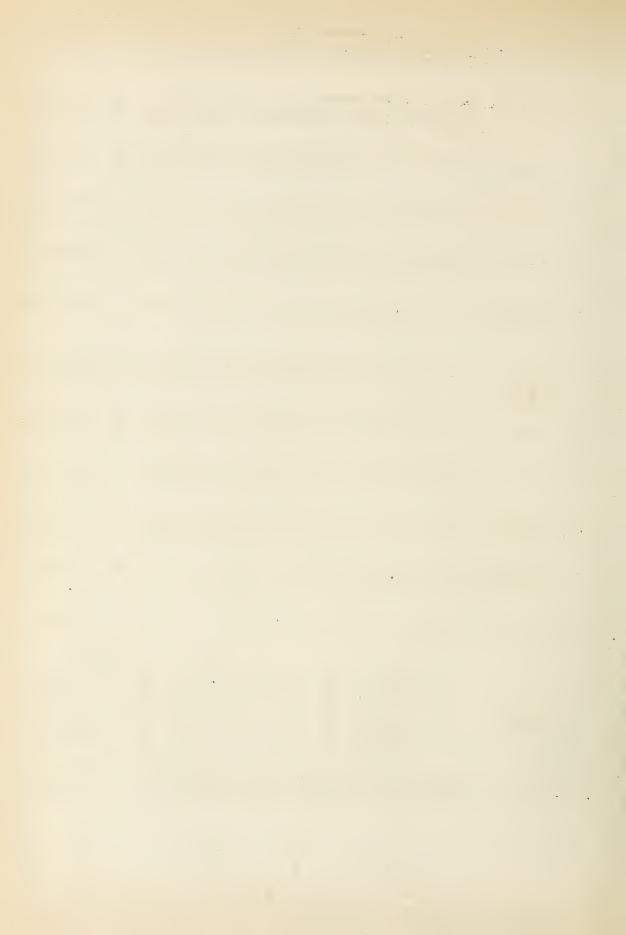
Uniform Winter Hardiness Nursery.

In the fall of 1923, 27 varieties and strains of winter wheat were sown in triplicate rod rows at 22 agricultural experiment stations in the northern United States and in Canada. Observations on the winter survival of these varieties and strains are reported in the table which follows.

Little or no winterkilling occurred at the stations at Hays, Kans., North Platte and Lincoln, Netr., Ames, Iowa, and St. Paul, Minn. At the other stations considerable winterkilling occurred, the most severe being at Fargo and Mandan, N. Dak., and Saskatoon, Saskatchewan, where nearly complete winterkilling occurred. The hardiest strains this year were Odessa, Minhardi, Minturki, Padui, and Buffum No. 17, in the order named. None of the new varieties included in the experiments exceeded these hardy strains.

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CEREAL COURIER

Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR PUBLICATION)

No. 12 June 10, 1924. Vol. 16 Personnel (June 1-10) and Field Station (May 16-31) Issue

PERSONNEL ITEMS

Minter P. German, of Fauquier County, Virginia, was appointed June 6 as field assistant in the nursery and field experiments of this Office at the Arlington Experiment Farm.

Clarence W. Gilmore was appointed June 2 as field assistant in the cooperative investigations and experiments with cereals at the University Farm, Davis, Calif., under the direction of V. H. Florell.

Dr. H. B. Humphrey, pathologist in charge of cereal-disease investigations, left Washington June 8 for Rochester, N. Y., where he will join N. F. Thompson, pathologist in the investigation of chemical methods of destroying barberry, for a two-week's trip through New York, Pennsylvania, New Jersey, Vermont, New Hampshire, Maine, Massachusetts, and Connecticut to study the factors affecting the distribution and infection of the common barberry, to take notes on the infection of different species of buckthorn with the crown rust of oats, and to collect specimens of plant diseases.

Dr. A. G. Johnson, pathologist in charge of investigations of diseases caused by imperfect and sac fungi, will leave Washington June 15 for LaFayette, Ind., to confer with Dr. G. N. Hoffer and others concerning cooperative investigations on corn root and stalk rots. He also will go to Urbana and Bloomington, Ill., for similar conferences with State and Federal officials. His next stop will be at Madison, Wis., to confer with Dr. J. G. Dickson and H. H. McKinney and others regarding various lines of cooperative pathologic research. At St. Paul, Minn., he will confer with Dr. E. C. Stakman and J. J. Christensen regarding Helminthosporium diseases of cereals. At Fargo, N. Dak., he will study the cooperative investigations of certain flax diseases. He then will proceed to certain points in South Dakota to inspect cereals, especially for Helminthosporium diseases. Dr. Johnson expects to return to Washington early in July.

Frank D. Ruppert was appointed May 31 as field assistant in the cooperative cereal experiments conducted at the Kansas Agricultural Experiment Station Manhattan, Kans., under the direction of J. H. Parker. Mr. Ruppert was employed for the same work last summer.

Dr. E. C. Stakman, associate plant pathologist at the Minnesota Agricultural Experiment Station, and agent in the cooperative cereal-disease investigations with this Office, was in Washington two or three days last week conferring with the Cerealist and others concerning epidemiology studies of stem rust.

Bruce Vazeille was appointed June 2 as field assistant in the cooperat cereal disease experiments at the University Farm, Davis, Calif., under the direction of W. W. Mackie. Mr. Vazeille was employed in the same work in the summer of 1923.

Roy A. Weaver was appointed May 31 as junior analyst to assist Dr. G. Hoffer in the cooperative corn disease investigations at Furdue University in 1922 and 1923.

Dr. W. H. Weston, Jr., pathologist in charge of the investigations of downy mildew of cereals, came to Washington from Cambridge, Mass., on June 9 to confer with the Cerealist and the pathological staff on matters relating to these investigations. On June 10 Doctor Weston left for Miami, Fla., where he will study downy mildew of Setaria. Later he will proceed to Cuba, where he will spend the summer in conducting investigations for the Tropical Plant Research Foundation.

In this connection it is of interest to note that the Tropical Plant Research Foundation was incorporated on June 6, 1924, by Dr. Robert A. Harper Maj. George P. Ahern, and Dr. William A. Orton. This Foundation has been established "to promote research for the advancement of knowledge of the plan and crops of the tropics; to conduct investigations in plant pathology, entomology, plant breeding, botany and forestry, horticulture, and agronomy, and to publish the results thereof; and to establish and maintain such temporary or of these objects, under the restrictions and regulations established in its by-laws."

The affairs of the Foundation will be administered by a Board of Trustees as follows: Dr. L. R. Jones, President; Dr. R. A. Harper, Vice-President; Prof. S. C. Prescott, Dr. D. L. Van Dine; Dr. William Crocker; V. M. Cutter, H. C. Lakin, Maj. Geo. P. Ahern, and J. T. Crawley. The first four are scientific men, while the last four represent business interests. Dr. W. A. Orton is the scientific director and general manager of the Foundation.

Gustav A. Wiebe, junior plant breeder in charge of cereal experiments at the Aberdeen Substation, Aberdeen, Idaho, was married on June 4 to Miss Linda Marie Benman, of Aberdeen.

The following appointments have been made for barberry eradication since May 15:

Illinois: Earl D. Cornwell and Wendell S. Muncie; Indiana: Lawrence A. Dougherty, Everett J. Eliason, Harold R. Holcomb, Charles H. Miller, Gerald S. Sevell, and Harold J. Wegel; Iowa: Walter P. Raleigh; Minnesota: Ray R. Hirt; Montana: Jackson L. Cartter, Harry M. Jennison, and William L. Popham; Nebraska: Benjamin F. Dittus and Percy Rohrbaugh; South Dakota: Paul L. Errington, Walter H. Michaels, Glenn L. Walter, Frank F. Welch; Texas: Wallace Butler; Wisconsin: Frank D. McKay.

VISITORS

O. S. Rask, of the School of Hygiene and Public Health, 310 West Monunent St., Baltimore, Maryland, who has been making studies on the viscosity of poiled pastes made from different flours, conferred with the Cerealist on fune 7 on the subject of flours milled from wheats differing in winter hardiness.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Some Effects of Sodium Arsenite When Used to Kill Common Barberry," by <u>E. R. Schulz</u> and <u>Noel F. Thompson</u>, was submitted June 7 for publication in the Journal of Agricultural Research.

Galley proof of article, entitled "Supernumerary Spikelets in Mindum Wheat," by \underline{F} . A. Coffman, scheduled for publication in the Journal of Heredity, was read June 4.

Galley proof of article, entitled "'Hairy Neck' Wheat Segregates from Wheat-Rye Hybrids," by Clyde E. Leighty and J. W. Taylor, for publication in the Journal of Agricultural Research, was read June 6.

Page proof of reprint of Department Circular 305, entitled "Electro-chemical Treatment of Seed Wheat," by <u>C. E. Leighty and J. W. Taylor</u>, was read June 3.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (June 5) The early varieties of wheat are beginning to ripen and the prospects are favorable for some good yields. Rye and winter barley also look well and are being harvested. Winter oats show a very low winter survival and on those remaining the date of maturity has been delayed for a week to ten days.

I expect to leave for the Coastal Plain Experiment Station in a few days to thresh out the grain there.

VIRGINIA

Arlington Experiment Farm, Fosslyn (J. W. Taylor) (May 29) The spring season has been exceedingly unfavorable for farm operations or the normal development of the growing crops. In the first half of May 3.82 inches of rain fell, and to date (May 29) 2,60 inches are recorded for the latter half. As the total rainfall for April was 5.19 inches, the soil has been at the saturation point the greater part of the present month. Dry weather for the next ten days is surely needed to allow planting of corn and other spring crops.

The winter grains, particularly wheat and rye, have made a tall, rank vegetative growth and already some rye and wheat plats are permanently lodged. Oats appear to suffer least from the weather. The earlier varieties of wheat and oats flowered during the rainy period and plats of both crops were observed in full bloom during drizzling rains. If water is harmful to the process of pollination, a poor seed set is certain.

An excellent demonstration of the effectiveness of one of the new mercurial compounds on the control of both tarley smuts is observable in the barley plats. In some varieties the plants from the untreated seed show nearly 45 per cent smut, while the treated seed has produced plants either entirely free or containing three to five smut heads in a fortieth-acre plat.

Little leaf rust is present in either wheat or rye. From 40 to 50 natural F1 wheat-rye hybrids have been noted in the wheat plats. We have had no success in making the cross rye x wheat, and for the past two years have been using as pollen parents descendants of wheat-rye bybrids; but so far the attempts to obtain the first generation hybrid have been failures.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (No report)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (May 22) The seeding of rice experiments was completed May 17. While the weather has been quite dry, orly light showers of rain having fallen since April 11, rice seeded the first week in May is germinating nicely. There was very little difficulty

in obtaining a good seed-bed for rice on land that was devoted to soybeans last year. The soil pulverized easily, and there was sufficient moisture in most of it to effect good germination.

The fertilizer experiments have been increased this year to include sulphur bone meal, and potassium phosphate. This gives a total of 71 plats devoted to experiments with fertilizers.

Land is now being prepared for the sceding of soybeans. It has been found that the period from about May 20 to June 15 is the best time for seeding the Biloxi soybean when grown in rotation with rice.

- Edwy. S. Landry, rice specialist, Extension Division of the Louisiana State University, with headquarters at this Station, reports about 900 acres of Biloxi soybeans in Jefferson Davis Parish. This is an increase of about 885 acres over last year. Of the 900 acres, about 700 acres will be grown in rotation with rice. Mr. Landry also reports about 350 acres of Biloxi soybeans in Calcasieu Parish. This is an increase of about 325 acres over last year. Of the 350 acres, about 250 acres will be grown in rotation with rice.
- J. W. Ingram, junior entomologist, Bureau of Entomology, with headquarters at this Station, is making a survey of the local rice fields with a view to getting information on the abundance and damage of the rice water-weevil. He has enlarged his insectry and expects this year to carry on more extensive investigations with rice insects.
- Dr. M. A. Barber, special expert in charge of the malaria laboratory of the United States Public Health Service, with headquarters at this Station, states that there is more or less malaria present in Acadia Parish, as there is almost everywhere in this part of the South, and in some localities in the Parish a considerable number of cases appear yearly. Generally, however, the amount of malaria here is not great; at least no large amount appeared during their observations last year and this spring, and a prospective immigrant should not hesitate to come to this part of Louisiana on account of danger from malaria.

(June 5)

Work on the Station is progressing nicely. The planting of soybeans was completed on May 24. The total area seeded to soybeans is about 12 acres, the greater part of which is the Biloxi variety. These beans enter into the general rotation on the greater part of the experimental area, as well as taking part in the rotation experiments.

Rices seeded in the past week are germinating fairly well and will soon be up to a stand. A good rain is needed to aid in completing germination.

Farmers in this Parish who expect to grow soybeans are preparing their land, and the Station is having calls almost daily for information pertaining to the seeding of this crop.

E. S. Landry, rice specialist, states that about 5,000 acres will be seeded to Bilexi soybeans in Acadia Parish this season. This is an increase of about 4,850 acres over last year. Of the 5,000 acres, about 3,000 will be grown in rotation with rice, and the remaining acreage will be grown in combination with corn and for hay.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (June 3) The month of May was one of the coolest and wettest on record. Except for two or three days at the beginning of the month, and a day or so toward the end, there was practically no favorable crop-growing weather in May. Corn planting made very little progress and much of the seed not planted before May 1 could not be planted until the last few days. Stands of corn are rather poor over the State as a whole, and corn is growing very slowly on account of the cool, cloudy weather. Wheat is heading generally in central Missouri and in many sections of northern Missouri. Stands of wheat are not very good and chinch bugs are common. A great deal of loose smut also occurs.

We have practically completed corn planting on the Station field and have begun planting soybeans. We are growing a larger proportion of corn this year than for many years past. Corn investigations include studies of root rot, chinch bug resistance, genetic studies, and breeding investigations.

Some rather interesting preliminary results were obtained last season in our investigation of variation in the intensity of linkage in maize. In this study the linkage of the factors Cc-Sh sh-Wx wx is being determined in different strains of corn and under varying environmental conditions. Last spring Dr. R. A. Emerson, of Cornell University, very kindly furnished me with the seed of three ears heterozygous for these factors and with the appropriate stocks for back-crossing. During the 1923 season the production of seed for future use was the chief concern, but it was possible incidentally to make a number of back crosses for linkage data, using the heterozygous plants as seed parents. Data on crossing over in the C-Wx region are available from 115 plants including something over 50,000 seeds. The cross-over percentages in the three families were as indicated below:

	Number of	Number of Seeds		Cross-over
Family	Plants	Total	Cross-overs	percentage
A	51	27,757	5,326	17.90 ± 0.15
TR	20	g 70g	1 970	22 62 + 0 31
n	20	0,500	1,017	40.00 4 0.74
C	29	8,446	2,183	25.85 ± 0.32
B	20	8,308	1,879	22.62 ± 0.31

Apparently there were rather wide genetic differences in the intensity of linkage in these three families. The difference in cross-over percentage between family A and B is 4.72 ± 0.34 , between families B and C 3.23 ± 0.45 , and between families A and C 7.95 ± 0.35 . All three differences are statistically significant according to any ordinary standard.

That considerable environmental variation in crossing-over occurs is indicated by the differences in cross-over percentage between different ears of the same plant. In family A there were 46 cases in which the cross-over percentage of different ears of the same plant could be compared. The number of cases in which the difference in cross-over percentage exceeded its probable error was considerably greater than could be accounted for by errors of random sampling. Apparently the different environmental conditions under which different ears of the same plant developed caused rather marked differences in the percentage of crossing-over in many cases.

We are making a rather extensive investigation of this problem in the present season. Cross-over percentages for C-Wx or C-Sh-Wx are being made in (1) 16 strains differing in descent (2) six successive plantings at 10-day intervals in two strains and (3) two or more ears of each of 100 plants, in a study of normal variability in crossing-over. In most of these cases crossing-over in both megasporogenesis and microsporogenesis will be determined. In addition preliminary trials are being made this season on the effects of temperatures, anesthetics, ultra-violet rays, and various other factors on crossing-over.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (May 24) After the usual delays in getting the corn ground prepared, we marked out the plats last Saturday, May 17, and planted Monday, May 19. The acre of Neal Paymaster corn will be put in as soon as possible this next week. The farmers' convention just closed has somewhat delayed the plat work.

The wheat-rust pursery is looking well. The plants are beginning to head. There are no signs of rust either in the wheat or the oat nurseries.

The ten varieties of non-irrigated rices sent by Mr. Chambliss were seeded this morning.

(June 3)

Weather conditions during the past two weeks have been unfavorable to crop growth. Corn has been slow to germinate. The later plantings in the crossing blocks have been made. Yesterday the acre-plat of Paymaster corn was seeded, at a rate thicker than usual to insure a good stand. A few warm bright days will help the corn and cotton materially.

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Cats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, J. H. Muncie) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, LaFayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purque University Agricultural Experiment Station, LaFayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Furdue University, LaFayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture. Ohio State University, Columbus (Barberry Eradication, J. W. Paringer) (May 16) Field operations in barberry eradication began early in April. Six field scouts were hired. We were fortunate in having Dr. F. E. Kempton with us on April 1. He talked to the new field scouts on the progress of barberry eradication and on fiscal matters. On April 1 and 2 Prof. W. G. Stover, of the botany department, of the University of Ohio, gave the new men a series of lectures on plant diseases, with special reference to cereal diseases.

As the weather in the first two weeks of April was cold and rainy the entire crew worked in the cities and towns of Lorain County. Barberries in southern Ohio began to leaf out on the 10th of April, but in Lorain County the leaves were just coming out on April 25.

A determined effort has been made in the past four weeks to eradicate the escaped barberries in the larger wild areas of western Ohio. Large quantities of salt and keroseme have been used on escaped barberry bushes, sprouts and seedlings in Clermont, Montgomery, Preble, Clark, Shelby, Logan, Seneca, Wood, and Incas counties. Almost all of the escaped fruiting bushes in western Ohio had been previously killed or recently treated. There were few sprouts in most of the areas visited, but an abundance of seedlings were found at each place. As the season advanced the chemical treatment was carried northward into the State. Leaves on the barberries became conspicuous before the leaves on the native bushes and briars; thus it was comparatively easy to spot the barberries at a considerable distance.

At the same time that the work among escaped barberries in western Ohio was in progress a constant watch was kept for the first appearance of rust on barberries. The result of the search for rust on barberries is summarized in a table on the following page.

Results of observations for stem rust on barberries in Ohio, from April 14 to May 15, 1924.

Date of Loca	tion		
Observation County	Nearest City	Results	Name of Observer
April 14 Franklin " 18 Clermont " 19 Montgomer " 22 Clermont " 23 Montgomer " 24 Franklin " 26 Clark " 29 Shelby May 2 Logan " 4 Franklin " 5 Seneca " 6 Wood " 9 Lucas " 9 Shelby " 10 Preble " 10 Lorain " 15 Lorain " 16 Franklin " 15 Highland	Batavia	No rust """ """ """ """ """ """ """ """ """	John W. Baringer """" """" """" """" """ """ """ """

MICHIGAN

Agricultural College, Fast Lansing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSIN

J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (June 5) The weather in the last half of May was similar to that of the first half in being cool and dry. This condition interfered with sorghum seeding, as it is doubtful if anything is gained by sowing sorghums in dry, cool soil.

The third date-of-seeding plats emerged to fair stands on May 21 and 22. On May 31 the fourth date-of-seeding plats were seeded.

Maximum temperature for last half of May, 89° on May 17; minimum, 41° May 24. Precipitation for last half of May, 0.40 of an inch, in four showers. The total precipitation for May was 0.78 of an inch, while the 10-year average for May is 3.68 inches. A shower of 0.33 of an inch on June 1, following a precipitation of 0.28 of an inch on the previous day, added enough moisture to permit seeding kafir, on June 3, in the plats of the rate-of-seeding experiment, consisting of two varieties each of five rates. On the following day the varietal plats of grain sorghums were seeded; on June 4 and 5 a field was seeded with sorghum hybrids, mainly fourth-generation material, head to row.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Svanson) (June 1) The drought which began the latter part of April and continued through May was broken on May 26. Since that date a precipitation of 3.50 inches has been recorded. The ground is now thoroughly soaked and the prospects for a wheat crop have never been better.

Most of the winter wheats and the early varieties of oats and barley are coming into head.

All of the sorghum varieties and selections were seeded on May 19, 20, and 21. The stand is rairly uniform but in some cases, slight damage resulted from heavy rains. Approximately 3,000 individual kernels of an F_2 generation of a cross between dwarf mile and pink kafir, and dwarf mile and dwarf hegari were sown. Each kernel is allotted two square feet of ground. This is a new system of planting and is designed to facilitate study of the individual plant. Under the old system of seeding in rows it was very difficult to identify individual plants.

Through the courtesy of Mr. L. C. Aicher, Superintendent of the Station, more space has been provided for the seed room. This extra space has been sorely needed for several years.

J. Allen Clark, agronomist in charge of western wheat investigations, is expected tomorrow to look over the cereal experiments.

Ernest Lyness, student at the Kansas Agricultural College, will assist the writer this summer in the cereal project.

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (May 20) A recent inspection of properties containing common barberries which were salted last year shows no growth this spring.

An inspection on May 16 of the Capitol and park grounds of Cheyenne, Wyo., showed no sprouts. Although the season is rather late barberries are leafing out; no infection was found, however. A search for rust on grains and wild grasses was made between Cheyenne and Pine Bluffs but no new uredinia was found.

Early in May epidemiology studies were made in eastern Colorado and properties were inspected for barberry sprouts. No new rust was found on grasses or grains.

Weather conditions had been, and were at this time, cool and windy. Slide exposures were made and examined in the field but no spores were caught.

County Agents and agricultural teachers were interviewed in regard to cooperative reporting of plant diseases in their localities.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague) (No report)

A. F. Thiel) (No report)

College of Agriculture, University Farm, Lincoln (Barberry Eradication,

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel) (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Agricultural Experiment Station, Agricultural College (Report by T. E. Stoa, Assistant Agronomist) (June 2) We have had a very unusual spring. After dry, warm weather in March and early April (most of the small grain was seeded before April 20) the weather turned cold and wet. It has remained so almost throughout all of May, with the exception of the last few days.

Frosts have injured the more tender crops. However, I believe that the continued cold has been a more serious factor than the extreme temperatures. I have found very little direct injury to flax from frost, but in many instances I have noted the tardy emergence of the plants after sprouting and very frequently they have failed to emerge because of the continued low temperatures and cold, dry winds which lessened their vitality. I have noted no injury to flax plants emerged successfully, though it is only in the last day or so that these have taken on a healthy, vigorous color. This is the closing of our first week of warm spring weather.

Dickinson Substation, Dickinson (R. W. Smith) (May 16) Corn varieties were seeded yesterday and varietal plats of flax and proso were sown today. This completes the seeding of cereal projects with the exception of the corn nursery, the date-of-seeding flax, and a few head rows in the wheat nursery.

Seeding has been delayed considerably by frequent snowsqualls and the consequent wet condition of the soil. Much of the seeding was done between or during snow flurries. The varietal plats of spring wheat were sown April 23 with a temperature of 70 degrees. On the following day the last of the oat varieties were sown in a snowstorm. Another storm began with the seeding of barley varieties and prevented further sowing for several days. Snow also fell during the seeding of the nursery and prevented the continuous seeding of that project. The last and biggest snow of the season occurred on May 6 and delayed field operations for several days.

Grain that has emerged has grown rapidly during the few warm days. Winter wheat and rye were greatly benefited by the moisture, having indeed no chance to suffer from dry weather, and are in unusually good condition.

The acreage sown to spring wheat in this section probably is considerably less than usual, while the acreage of flax and corn will be much increased. There has been an unusual demand for seed of these latter grains and a large quantity of seed of adapted corn varieties has been distributed from the substation this spring.

(June 2)

Unusually cold weather has prevailed during most of the month of May. Corn varieties seeded May 15 have not yet emerged. Freezing temperatures have been frequent and might have injured corn if it had emerged. Flax apparently has not been injured. Snowsqualls, which were common in April and the first half of May, occurred once or twice after the middle of May. Several light showers of rain failed to make the precipitation for May as great as usual. Soil moisture conditions are fairly good, although a good rain followed by warmer weather would be beneficial.

All cereal crops at the Substation have emerged except the flax in the latest date-of-seeding. One more seeding in the flax tillage and date-of-seeding experiment will complete the seeding of cereal crops. Winter grain is in excellent condition. Spring grains are doing fairly well but are shorter than usual at this time of the year.

Seeding by farmers is almost finished, with the exception of flax, a large acreage of which is being sown in this locality.

The total number of seedings in different, cereal projects at the Substation is greater than usual, being as follows:

Field plats - - - - - - - 496

Nursery rows - - - - - - - 4069

Field varieties and strains

of corn - - - - - - 26

Ear rows of corn - - - - - 260

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.)
(May 17) In the first half of May the weather was generally cold and windy. Strong, cold winds on a number of days made field work very disagreeable. Seed has been very slow in germinating this season.

The wheat varietal plats sown April 18 emerged about May 3. The oat varietal plats sown April 22 emerged about May 5. The barley varietal plats sown April 30 emerged about May 11. The flax and wheat mixtures and date-of-seeding sown May 1 emerged about May 14. The wheat and oat nurseries sown May 3 emerged about May 15.

The third seeding of the date-of-seeding-and-tillage experiment was made May 15. The flax varietal plats also were sown May 15.

Most of the flax nursery was sown May 16. With the help of one other man we seeded 436 17-foot rows and 705 5-foot rows.

Maximum temperature for the first half of May, 79° May 15; minimum, 29° May 12; precipitation, 0.20 of an inch. The average wind velocity for the whole period was 9.2 miles per hour.

(June 2)

The weather during the last half of May has continued cool and windy. Only 0.21 of an inch of precipitation was recorded, making the total for May only 0.41 of an inch. The low precipitation, together with the low temperatures, has greatly retarded the germination of seeds and the development of spring-sown crops. Winter rye is already heading, however.

Flax sown May 15 and 16 in the date-of-seeding, varietal plat, and nurser experiments emerged about May 23 with poor stands. Flax sown May 17 during a small shower, emerged about the same time with fair stands. Flax sown May 20 emerged about May 30 with poor stands.

The early June seeding in the date-of-seeding-and-tillage experiment was made today (June 2).

On six days in the last half of May freezing temperatures were recorded. The tips of the leaves of barley, and to some extent also of oat and wheat seedlings, were frostbitten. Flax also was perceptibly affected by frost. Flax sown April 15 and May 1, which was up and well developed by May 24, was nipped at the tips of the leaves, but very few plants were killed. Flax sown May 15, which was just ready to come through the surface of the ground, suffered most severely from the frost May 24. Many plants were killed at this stage before they had a chance to emerge, so that the stand was considerably reduced. It is difficult to estimate the percentage of frest injury, because germination of flax sown May 15 was very poor, as the result of the low precipitation in May.

Maximum temperature for the last half of May, 74° , on May 22 and May 31; minimum, 23° on the night of May 24.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (May 31) The precipitation recorded in May was 1.20 inches, while the average for the month is 2.75 inches. Though the precipitation was less than half of average, the weather was cloudier and cooler than usual. Crops need rain, but are not suffering from lack of moisture, largely because of cool weather. However, the cool weather is delaying the growth of all crops.

All of the nursery rows and most of the plats of winter and spring grain were trimmed in the week ending May 31. The roadways have not been cleaned.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (May 26) Temperatures have been very favorable for crop growth the last two weeks. The rainfall has been very light this spring, necessitating the use of irrigation water at an earlier date. Irrigation water will be short this year. If the present forecast holds we will have water until about July 20. The yield of late crops, such as sugar beets, will be light this year.

In some of the early barley varieties in the nursery awns have emerged. Winter wheat will head in about two weeks.

The agriculture class from McCammon High School, McCammon, Idaho, visited the Substation recently.

(June 2)

Crops are looking fine and apparently are from a week to ten days ahead of last year.

. Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (June 6) The weather in the last two weeks in May continued dry, with comparatively high temperatures during most of the period. The total precipitation for the month at Moro was only 0.05 of an inch. The total precipitation for March, April, and May was only 0.65 of an inch, the lowest on record for the 19-year period since weather records have been kept. The total precipitation at Moro from January 1 to June 1 has been only 2.64 inches, or a little more than one half of the normal for this period.

Wheat yields throughout eastern Oregon will be low. A large area will produce no grain at all and will be cut for hay. In the Columbia Easin counties the wheat yields probably will not be more than half the normal.

All winter wheat varieties on the Station are fully headed. Hard Federation, White Federation, and Sunset spring wheats also are fully headed. A number of spring barleys and the early oat varieties are nearly fully headed.

WASHINGTON

Adams Branch Station, Lind (Report by M. A. McCall) (May 27) Crop prospects in eastern Washington are decidedly unfavorable. There has been almost no rainfall since the opening of the spring season. With a lower average relative humidity and more frequent winds than usual, crops have absorbed moisture at a greater rate. As a result, winter wheat in many of the districts of shorter rainfall is even now suffering from lack of moisture. Even very abundant rains, such as we can not expect, would not save the winter-wheat crop in many localities. Spring wheat is in a less serious condition, but if the present weather continues this crop probably also will be somewhat short.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (May 31) The weather this month has been favorable for germination and growth of rice. In the varietal experiments and in the nursery good stands have been obtained. In the experiments on the control of water grass by continuous submergence it appears that the stands will be good, but it is too early at present to determine definitely.

The canal from which we obtain our irrigation water rises during the night and lowers during the day, in other words, it fluctuates a great deal daily. This makes it very difficult to control the water properly on the plats, but I hope that as scon as the rice fields are submerged we shall have a constant head of water as in past years. We may have to contend with fluctuation all summer, however, if the water in Feather River is as low as it is reported to be.

The maximum temperature for the month was 99°F on May 16; minimum temperature 44°F on May 6; the greatest daily range in temperature was also 44°F on May 17. The highest average hourly wind velocity, 9.78 miles, was recorded on May 29. The total evaporation for May was 7.431 inches.

University Farm. Davis (V. H. Florell) (May 31) For three days of the current week, beginning early Tuesday morning, this section experienced a severe "norther," which, according to news items in the daily papers, extended as far north as the State of Washington. The maximum wind velocity at the Sacramento weather station was 32 miles an hour, but it is estimated to have reached a considerably higher velocity here where the landscape is more open, - possibly somewhere between 40 and 45 miles per hour. Reports of quite serious damage to grains as well as fruits are beginning to come in. The winds also have been accompanied by high temperatures which have hastened the maturity of the grains.

The cereals in the experiment plats look pretty ragged after the wind storm. Quite a large number of varieties of wheat show broken culms and those susceptible to lodging are pretty well flattened out. Quite a percentage of broken heads (toward the lower end of the rachis) may be observed in Onas and Pilcraw. Varieties such as Quality, Prelude, and crosses of Sunset and Prelude are pretty well shattered out. Quite a little selection has already been done in the elimination of segregating wheat hybrids susceptible to shattering.

The barleys suffered greater injury than the wheat. In varieties more or less susceptible to shattering nearly all heads are broken off or shattered out. Others are badly lodged. Mature varieties of oats are badly shattered with some lodging and broken culms.

Varieties of grain adapted to the Valley have come through the "norther" in fairly good condition, while weaknesses have been exposed in others. It is after all an ill wind that does no one a good turn.

All varieties of barley are fully ripe with only a few exceptions, the most important of which is the Cape X Coast hybrid. This barley will not be ready for harvest for a few days, while others, except those noted, are ready. Harvesting was begun in the barley nursery today and it is planned to begin on the barley plats early next week. The oats plats also will be harvested next week. Wheat is not so far advanced, but in another week most of the varieties probably will be ripe.

Two weeks ago today I went to Chico by automobile, driving up on the west side of the Sacramento River and returning on the east side. I was surprised to find commercial grain fields in better condition than I had expected. Between Woodland and Arbuckle a number of very goodlooking fields of barley and wheat were seen. West of Biggs along the Sacramento River the appearance of the grains was poor, but conditions were fairly good in the Chico district. On the return trip grains were found to be in fairly good condition on the adobe soils south of Chico. Several good fields also were noted in the Sutter Basin southwest of Marysville.

The best winter-sown grain was seen around Chico but in most places it was very poor. The present conditions show rather clearly that fall-sown grain is a fairly dependable crop, while winter sowing is more or less hazardous.

As many of the fields seen on the Chico trip were already more or less mature it is likely that they were severely injured by the recent wind storm.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

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CEREAL COURIER

Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR PUBLICATION)



Vol. 16

June 20, 1924
Personnel (June 11-20) and Field Station (June 1-15) Issue

No. 13

PERSONNEL ITEMS

Dr. C. R. Ball, Cerealist in Charge, has been serving for several days with the committee detailed from the United States Department of Agriculture to assist the Agricultural Division of the United States Census Bureau in the preparation of the schedule for the agricultural census authorized by Congress to be taken as of January 1, 1925.

Dr. Harry V. Harlan, agronomist in charge of barley investigations, is expected back in Washington about June 30. He left Sacaton, Ariz., June 8 and went to the Pacific Northwest to look over the cooperative barley experiments. He is now en route from Pullman, Wash., to points in Kansas. Leaving Manhattan, Kans., about June 25 he will arrive in Washington on or about the last day of June.

Benjamin Koehler, who has been assistant pathologist in the investigations of wheat scab and corn root and stalk rots conducted at Bloomington, Ill., since 1919, resigned June 14 to accept a position as pathologist at the University of Illinois.

C. H. Kyle, agronomist in corn investigations, will leave June 27 for Knoxville, Tenn., and New Orleans and Baton Rouge, La., to take notes on and hand pollinate corn in the cooperative experiments, and to confer with experiment station officials. Mr. Kyle will be in the field for about three weeks.

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, returned to Washington June 18 after a trip in the west and southwest in the interests of wheat breeding. His first stop was at Sacaton, Ariz., where he gathered the harvest from the recent wheat introductions grown at the Cooperative Testing Station. Among them are introductions from many foreign countries, especially Russia, Portugal, Algeria, Egypt, India, and China; a few samples from numerous other localities were included. On the return trip Doctor Leighty stopped at St. Louis, Mo., where he examined the flag-smut and rosette nurseries. The plantings were badly winterkilled. Doctor Leighty next visited the wheat nursery at Knoxville, Tenn., where cooperative investigations on breeding for leaf-rust resistance are being conducted. At Lincolnton, N. C., Doctor Leighty met Dr. A. G. Johnson, of the pathological staff of the Office, and Dr. F. A. Wolf, plant pathologist of the North Carolina Agricultural Experiment Station, with whom he examined the experiments devoted to the "take-all" disease of wheat. From this point Doctor Leighty returned direct to Washington.

- Dr. E. B. Mains, agent in the leaf-rust investigations in cooperation with the Purdue University Agricultural Experiment Station, will be in Washington during the week of June 23 to take notes on leaf rust of wheat at the Arlington Experiment Farm, in connection with the studies on leaf-rust resistance in wheat and investigations for obtaining leaf-rust resistant strains.
- J. H. Martin, agronomist in western wheat investigations, who has been at the University of Minnesota, for the past school year, engaged in graduate study in plant breeding, left St. Paul June 18 en route for Manhattan and Hays, Kans., to study cooperative experiments with cereals and confer with State and Federal officials. He will then proceed to the United States Dry-Land Field Station at Akron, Colo., where he will remain until after July 1, taking notes on the growing crops and preparing for the harvest. It is expected that F. A. Coffman, agronomist in oat investigations, will join him there about July 1 and together they will harvest the plats and breeding nurseries and close up the work, as the cut in the appropriations for cereal investigations makes it necessary to discontinue the cereal experiments at Akron.
- Miss Mary L. Martini, biometric calculator and assistant in barley investigations, who has been taking notes in the barley nurseries at the Cooperative Testing Station, Sacaton, Ariz., finished her work on June 8 and is on leave of absence in Ohio until June 30.
- M. A. McCall, recently appointed agronomist to assist the Cerealist in the administration of the agronomic division of the Office, will leave Pullman, Wash. June 21 for Moro, Oreg., where he will meet J. Allen Clark, agronomist in charge of western wheat investigations, and T. R. Stanton, agronomist in charge of oat investigations, in an examination of the cooperative cereal experiments at the Sherman County Branch Station. He will then proceed to Corvallis, Oreg., to confer with the officials of the Oregon Agricultural Experiment Station. The next points in his itinerary are Berkeley and Davis, California, where he will arrive early in July.
- Jesse H. Muncie, assistant pathologist, who has been leader of the barberry eradication campaign in Iowa since June 16, 1922, resigned at the termination of June 15 to accept a research position at the Iowa State College.
- M. N. Pope, agronomist in barley investigations, will leave Washington within a few days for Aberdeen, Idaho, where he will take notes on and harvest the barleys grown in the cooperative barley nursery at the Aberdeen Substation.
- Russel G. Rothgeb, of Page County, Virginia, was appointed June 16 as field assistant in the field and nursery experiments with cereals at the Arlington Experiment Farm.
- <u>Victor V. Sturlaugsen</u> was appointed June 16 as field assistant in the cereal cooperative investigations conducted under the direction of Ralph W. Smith at the Dickinson Substation, Dickinson, N. Dak. Mr. Sturlaugsen was assistant to Mr. Smith in 1923.

The following report has been received from T. R. Stanton, agronomist in charge of oat investigations, concerning agricultural conditions in the middle west: Crops generally through Ohio, Indiana, Illinois, and Missouri were in a very backward condition. Wheat was in fair condition and most fields were fully headed. Oats and corn were exceedingly backward, however; in most fields of oats the plants were small and the ground still quite friable between the drill rows. Corn generally was planted as indicated by the planter rows, but in only a very few fields had the plants emerged. As a result, the crop apparently will be later than it has been for years.

In Kansas wheat looked fairly promising, but many fields were uneven (patchy) as a result of the dry weather in May. The crop apparently is in better condition in the eastern and western portions than in the central portion of the State. Some fields of Kanota oats were noted, and where they were sown early fair yields will be obtained. Some late-sown fields looked as though they would hardly be worth harvesting. Corn was further advanced and in better condition in Kansas than in the States east.

<u>V. F. Tapke</u>, assistant pathologist, left Washington June 20 to spend several days in the cooperative wheat experiment plats at the Cornell University Agricultural Experiment Station, Ithaca, N. Y., to inoculate wheat varieties with loose smut for the purpose of making varietal resistance studies.

Dr. W. H. Tisdale, pathologist in charge of smut investigations, will leave Washington June 22 to make a study trip in Kansas, Missouri, Illinois, and Wisconsin in the interests of flag smut of wheat and other cereal smuts. He will harvest the wheat in the cooperative flag-smut experiment plats at Granite City, Ill., and will confer with State and Federal officials at Leavenworth, Kans., Columbia, Missouri, Granite City and Urbana, Ill., and Madison, Wis.

The following appointments, effective since June 16, have been made in the barberry eradication campaign:

Illinois: Luther A. Black, Francis L. Clark, Virgil B. Fielder, Edwin D. Griffin, Edward C. Grumke, Joseph B. Hawkes, Lyle J. Hayden, Orval C. Holt, Lloyd I. Nelson, Cecil C. Rawlings, Loyal L. Rulla, Paul T. Sanders, Wilhelm G. Solheim, James A. Twardock, and Otis B. Young; Michigan: Herbert H. Birch, Howard E. Parson, Carl H. Ripatte, and Warren W. Wood; Minnesota: C. George Anderson and P. A. Davies; Wisconsin: Allan D. Dickson, John R. Fitzsimmons, Daniel O. Horne, Gordon T. Nightingale, and Hugh R. Stiles.

VISITORS

Charles H. Riggs and Guy Thelin, of the Shaowu Mission, American Board of Commissioners for Foreign Missions, Fukien Province, China, were visitors at the Office June 16 desirous of obtaining information regarding rice, sugar cane, and cotton, which they expect to grow in experiments in the Shaowu Mission. After visiting several of the larger industrial schools of the South they will go to New Orleans and Crowley, La., to obtain further information.

George I. Christie, Director of the Purdue University Agricultural Experiment Station, La Fayette, Ind., conferred with the Cerealist on June 20 concerning matters of mutual interest in connection with cooperative cereal problems. Professor Christie passed through Washington enroute from Guelph, Ontario, where he attended the celebration of the fiftieth anniversary of the founding of Ontario Agricultural College, of which he is a graduate and at which he made an address on Agricultural Education.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Stripe Rust (<u>Puccinia glumarum</u>) of Cereals and Grasses in the United States," by <u>H. B. Humphrey</u>, <u>C. W. Hungerford</u>, and <u>A. G. Johnson</u>, was submitted June 12 for publication as a bulletin in the Departmental series.

Galley proof of article, entitled "Bacterial Blight of Rye," by <u>C. S. Reddy</u>, <u>James Godkin</u>, and <u>A. G. Johnson</u>, for publication in the Journal of Agricultural Research, was read June 13.

Galley proof of paper, entitled "Aecial Stages of the Leaf Rusts of Rye, <u>Fuccinia dispersa</u> Erikss. and Henn., and of Barley, <u>P. anomala</u> Rostr., in the United States," by <u>E. B. Mains</u> and <u>H. S. Jackson</u>, was read June 13.

Galley proof of Department Circular 324, entitled "Markton, an Oat Variety Immune from Covered Smut," by <u>T. R. Stanton</u>, <u>D. E. Stephens</u>, and <u>E. F. Gaines</u>, was read June 18.

Page proof of Farmers' Bulletin 1429, entitled "Emmer and Spelt," by John H. Martin and Clyde E. Leighty, was read June 18.

Page proof of article, entitled "'Hairy Neck' Wheat Segregates from Wheat-Rye Hybrids," by Clyde E. Leighty and J. W. Taylor, for publication in the Journal of Agricultural Research, was read June 19.

The article, entitled "The Course of Acidity Changes during the Growth Period of Wheat with Special Reference to Stem-Rust Resistance," by Annie May Hurd, appears in the Journal of Agricultural Research, v. 27, no. 10, p. 725-735, 5 graphs. March 8, 1924. Literature cited, p. 735. (This number of the Journal was received June 14.)

The article, entitled "Nocturnal Production of Conidia by Sclerospora graminicola," by William H. Weston, Jr., appears in the Journal of Agricultural Research, v. 27, no. 10, p. 771-784, 2 pl., 1 diagram. March 8, 1924. Literature cited, p. 783-784. (This number of the Journal was received June 14.)

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

JEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (No report)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins (No report)

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, J. H. Muncie) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSTN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA.

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (June 14) Five showers totaling 0.99 of an inch of rain in the first week of June enabled us to seed practically all of the grain sorghums and broomcorn. The weather of the second week has been hot.

The kafir rate-of-seeding plats were seeded on June 3 and emerged to stands by the 7th. The grain sorghum varietal plats were seeded on June 4 and emerged to stands by the 9th. On June 10 the sorghum nursery was seeded, on the 11th the broomcorn experimental plats were seeded, on June 12th a varietal test of kafir x milo hybrids and the milo rate-of-seeding experiments were sown, and on the 14th some hybrids and the fifth date-of-seeding plats were seeded. The seeding on the 14th was done in furrows opened with disk furrow openers, as the surface soil is becoming dry.

At present a good rain is needed very much, as wheat is in the milk stage and it is doubtful if it can fill properly without moisture.

Thinning of the date-of-seeding plats has been started.

Maximum temperature for the month to date, 1080 June 12; minimum for same period, 450 June 1; precipitation, 0.99 of an inch.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (June 9) The rod rows in the winter-wheat nursery survived the winter almost perfectly, with the exception of the variety Sevier, some winter durum selections, and certain of the crosses between Kanred and Hard Federation in which some rather severe winter-killing occurred. Stands are somewhat irregular owing to conditions at planting time and to deterioration during the cold dry spring. Growth is rather short in the rod-row nursery, which was planted on corn ground, but is much better in the plant-selection rows, which are grown on fallow. Of the 20 winter X spring-wheat crosses that are being grown for the first time in single field plats at the agronomy farm, one of the bearded selections headed several days earlier than Kanred and appears to be promising, while most of the awnless selections do not appear to have yielding capacity equal to Kanred.

The seeding of the spring oats and barley nursery was delayed because of a heavy snow on March 9 which prevented field work until late in March. The unusually dry period of the first three weeks of May held back growth, but a 2-inch rain in the last week has decidedly improved the oats nursery. A large number of pedigree selections of Kanota and Burt oats are included in the 1924 oat nursery, which also contains extensive plantings made in connection with smut-resistance trials. A large number of plant rows of false wild and other aberrant types in Kanota are also being grown. The oat plats at the agronomy farm which were seeded earlier than the nursery also were severely injured by the May drought. Nebraska No. 21 showed especially severe drought injury. Kanota seemed much more resistant to the unfavorable conditions and gave promise of making a fair crop even before the rains of late May. A selection of Burt made at Akron, Colo., (C. I. 2097) and Burt X Sixty Pay (C. I. 729) also appear promising. Chinch bugs have caused severe injury in the barley nursery; however, our entomologists have been enabled to get some rather interesting and significant data on differences in degree of chinch-bug injury. Barley yields in the nursery will not be very reliable because of differences in stand and chinch-bug injury. Club Mariout and Minsturdi are among the more promising strains in appearance. California Mariout has again headed so short that, had it been grown under field conditions, it would be extremely difficult if not impossible to harvest it with a binder.

- C. O. Johnston, assistant pathologist in the cooperative leaf-rust investigations, received his Master's degree on May 29. The title of his thesis was "A Study of the Inheritance of Leaf Rust Resistance in Wheat."
- J. Allen Clark, agronomist in charge of western wheat investigations, visited the Station on May 30 and 31, and T. R. Stanton, agronomist in charge of oat investigations, was here on June 5 and 6.
- C. R. Enlow has been appointed to succeed R. J. Silkett, as assistant agronomist in the cooperative experiments.
- J. W. Zahnley has been appointed collaborator with the Federal Bureau of Agricultural Economics, in studies of alfalfa-hay grades.

- J. E. Norton, a senior in agronomy, has been appointed nursery foreman.
- F. D. Ruppert, graduate assistant in crop improvement, has been appointed for the three summer months to serve as technical assistant in the cereal nursery at Manhattan and in the extensive barley nurseries at Hays and Colby.

The writer visited Mankato, Kans., and Lincoln, Nebr., on May 3 and 4 to study the winter-wheat nurseries with special reference to the winter hardiness of the winter X spring-wheat crosses.

Weather data for the month of May, Manhattan, Kansas.

Measurable precipitation on 8 days totaling 2.60 inches; clear days, 13; partly cloudy, 6; cloudy, 12; maximum temperature May 17, 92°; minimum temperature May 11, 30°; a killing frost occurred on May 11.

Kansas Weather and Crop Conditions for May, 1924.

It was the coldest May, except one, in the 37 years since a State-wide weather record has been kept and the driest May that the State has experienced in 23 years. Freezing weather occurred on the 10th and 11th, but comparatively little damage was done as vegetation was generally backward. Most of the precipitation came in the last six days. The first three weeks were so dry that wheat deteriorated in many important producing sections. At Dodge City, where the total rainfall for the month was only 0.63 of an inch, it was the third driest May in 50 years.

The rather severe spring drought was thoroughly broken the last week of May and the first few days of June over all of Kansas except in a few scattered localities. From 25 to 50 per cent of the corn acreage in the eastern two-thirds of the State will have to be replanted.

Hays Branch Experiment Station, Hays (A. F. Swanson) (June 15) Conditions in the first half of June have been very favorable for all growing crops because of the large amount of precipitation during the last days of May. Since June 1 there has been only 0.29 of an inch of rainfall. Wheat is now drawing heavily on the reserve moisture, but where the crop was put in on well prepared seed beds a drought probably will not be serious. However, another good rain would assure a bumper crop.

All of the small grains are now headed. There is practically no rust epidemic of any kind this season.

During the past week the sorghums were thinned to a desirable stand. The sorghum project covers about 15 acres, but with the help of from six to eight men for half-day periods the thinning has progressed rapidly.

Next week we shall begin plowing our summer fallow. Immediately following this the sorghums will be given their final cultivation just before harvest. Harvest probably will begin June 25.

It is estimated that Kansas will need 40,000 men to harvest its wheat crop. Farm labor is quite plentiful at Hays as a number of men have arrived early to be ready for harvest.

A new oil field of considerable promise is developing within 25 miles to the northeast of Hays. Two high producing wells are now flowing. Twelve other wells are going down, several of which are expected in soon.

J. Allen Clark and T. R. Stanton were recent visitors from the Office of Cereal Investigations.

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (June 17) In the first part of June a resurvey was made of the hedges on properties in Jefferson County upon which common barberry had been found. No sprouts had appeared on the property west of Fort Logan, where sprouts had been treated with salt in 1922 and 1923. However, five seedlings were found near the hedge.

The large hedge of 175 bushes near Golden that were cut off and salted last year had one sprout, but 87 one-year old seedlings were found near the hedge. Many of them were infected.

In Clear Creek County one sprout was found coming from a root in a crevice. The sprouting bushes in this county salted last year were all killed.

Aecia have appeared on seedlings and sprouts in Larimer and Jefferson counties. No spread of stem rust to grain had developed to date. The cluster cups on the barberry leaves were immature.

In the resurvey of the hedge site in the Cheyenne (Wyoming) city park 28 small sprouts were found coming up from root fragments scattered in the new lawn on the west and north sides of the park. No infection was observed.

The winter wheat in the plats at the Colorado Agricultural College, Fort Collins, planted for the study of the spread of stem rust, has headed out but no stem rust has appeared to date. Spring wheat in similar plats is from 5 to 15 inches in height.

A search for the appearance and spread of stem rust is being conducted in connection with eradication in order to find any missing bushes.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague) (June 14) Corn is somewhat backward as the result of the cool weather. Because of poor seed and unfavorable weather for germination some farmers are finding it necessary to replant.

Winter wheat in varietal plats is well headed out. The selections in the nursery which were space planted are somewhat slower.

Spring wheat, oats, and barley are just coming into head. The prospects are for a fair crop. Because of dry weather in April and May much of the grain will be quite short.

Sorghum varieties were seeded last week.

The weather of the first 15 days of June was cold and damp; 2.27 inches of rain were recorded. The maximum temperature for this period was 86° on June 14; minimum, 39° on June 1.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)
(No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel) (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

<u>Dickinson Substation, Dickinson</u> (R. W. Smith) (June 14) The last seeding in the flax tillage and date-of-seeding experiment was made today, completing the spring seeding for this year.

Cool, cloudy weather continued until about June 10. Since that time warm weather has caused a more rapid growth of cereal crops, most of which are about two weeks behind their usual stage of growth at this time. Winter rye is now fully headed, but winter wheat has not begun to head. Corn has been very slow in germinating; some of it is still emerging although planted a month ago. A small percentage has rotted in the ground.

There have been frequent light showers this month, totaling about an inch of rain. There has been no frost since the last week of May.

The plats have been trimmed and the nursery cultivated. Corn varieties have been harrowed twice and cultivation will start about June 16.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (June 16) The weather in the first week of June was generally cool; temperatures were more moderate during the second week. The precipitation was abundant and frequent, being recorded on 10 days out of the 15 and amounting to a total of 2.39 inches.

That part of the flax sown the middle of May which failed to emerge is just coming through the ground now. In many rows about half of the plants are already about an inch and a half high, while the remainder are just through the ground. Flax sown June 2 emerged about June 13.

The seed-treatment experiment with flax was sown June 5 and emerged about June 14.

The final seeding of the date-of-seeding-and-tillage experiment was made this morning.

Maximum temperature for the first half of June, 80° June 13 and 14; minimum, 40° June 6 and 10.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (June 14) Precipitation was recorded on nine days in the first half of June. The total was 1.31 inches, which is about one-half the average precipitation for the whole month of June.

At present there is abundant moisture in the soil for crop requirements. Crops are making rapid growth and so are the weeds. Winter wheat will be heading within a few days. Rye is almost in full head. Early-sown spring grain is about eight inches high.

The field operations under the Cereal Project since the first of June have included trimming of plats and nursery rows, staking of the plats and about one-half of the nursery rows, cleaning roadways, plowing land for summer fallow, and cultivating a part of the nursery rows and alleys. Frequent rains and showers delayed field work considerably.

LeRoy Powers, who is to assist Superintendent Osenbrug this summer, arrived yesterday.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (June 17) The harvesting of the cereals has progressed rapidly and all is now completed with the exception of some wheat-hybrid material, among which are certain selections which will be allowed to shatter before selections are made. The wind storm in late May did not do so much damage as was anticipated, except to varieties susceptible to shattering. We hope to begin threshing barley varieties in a few days and with good success threshing should be completed somewhat earlier than usual.

There have been quite a number of visitors at the Station in the past two weeks. J. Allen Clark, agronomist in charge of western wheat investigations, arrived June 5 to study and harvest wheat-hybrid material. He expects to leave tomorrow morning for Corvallis, Oreg., with T. R. Stanton, agronomist in charge of oat investigations, who arrived here on June 13 to inspect experiments in oats. The writer made a trip to Berkeley with Mr. Stanton to study different species of Avena found on the campus of the University of California and vicinity.

- Dr. H. H. Love's hybrid wheat material was harvested by Drs. R. A. Emerson and Frank Bussell, both of Cornell University. Doctor Emerson stopped here on his return from South America. Doctor Bussell arrived June 6 and returned June 15.
- Dr. H. V. Harlan, agronomist in charge of barley investigations, visited the Station June 10 to 12. While here Doctor Harlan gave an illustrated lecture on his cereal explorations in Abyssinia, which was enjoyed very much.
- J. W. Jones, superintendent of the Biggs Rice Field Station, visited Davis on June 14 to 15.
- Drs. Carl L. Alsberg. and Alonzo E. Taylor, and Prof. S. W. Young, of Stanford University, visited the cereal experiments on June 13. Doctors Alsberg and Taylor were particularly interested in the American commercial varieties of wheat and foreign introductions. Professor Young is professor of physical chemistry at Stanford University.
- Prof. G. W. Hendry, who late last year started on a trip around the world, returned to Davis on June 6.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR FUBLICATION)

AT (NOUS)

701. 16

June 30, 1924
Personnel (June 21-30) and Project Issue

No. 11

PERSONNEL ITEMS

F. A. Coffman, agronomist in cat investigations, will leave about July 3 for Ames, Ia., to study the oat varieties in the breeding nurseries at the Iowa Agricultural Experiment Station. At the North Flatte (Nebr.) Substation he will meet T. R. Stanton, agronomist in charge of oat investigations, to look over the cooperative tests with oats. Arriving at Ahron, Colo., about July 10 he will join John H. Martin, agronomist in western wheat investigations, and together they will harvest the plats and breeding nurseries at the United States Field Station, preparatory to closing up the cereal experiments that have been carried on at that Station for the past 17 years. Mr. Coffman next will visit the Cheyenne Experiment Farm, at Archer, Wyo., and the Aberdeen Substation at Aberdeen, Idaho, where oats are grown in special breeding plats. On the completion of his work at Aberdeen he will visit field stations in Montana, North Dakota, and Minnesota, returning to Washington about September 1.

A. C. Dillman, agronomist in charge of flax investigations, will leave Washington about July 5 for a study trip in the interests of flax growing in the States of Kansas, Minnesota, South Dahota, North Dakota, Montana, and Wyoming. He will make genetic studies and take notes on agronomic investigations with seed flax. Mr. Dillman will be in the field until about the middle of September.

Tranquilino G. Fajardo, a native of the Philippine Islands, who has been granted the degree of M. S. in Agriculture by the University of Idaho, has been appointed field assistant, effective July 1, in the cereal-disease (particularly stripe rust) investigations conducted at Moscow, Idaho, in cooperation with the Idaho Agricultural Experiment Station.

Dr. H. V. Harlan, agronomist in charge of barley investigations, returned to Washington June 30 after a field trip of two and a half months. Most of the time was spent at the Cooperative Testing Station, Sacaton, Ariz., where nearly 800 rows of b rley introductions were grown for Doctor Harlan, most of which he had obtained from North Africa and Kashmir, India. He found that the barleys from Egypt looked especially promising, - both the California Mariout type, which occurs to the west of Lake Mariout in Egypt, and the Delta type, grown extensively under irrigation. The barleys from Kashmir gave very high yields. Since these were grown in southern Arizona it is not yet known whether the Kashmir barleys are spring or winter forms. It may be of interest that most of the barleys grown this year were those adapted to culture in the western part of the United States. A large number was discarded by inspection alone, but there is every indication that varieties of value will be found in the collection.

Doctor Harlan, with the assistance of Miss M. L. Martini, took notes on about 5,000 plants of a third-generation hybrid, and gathered the harvest of the new introductions.

From Sacaton Doctor Harlan went to the Plant Introduction Garden, at Chico, Calif., and to the University Farm, Davis, Calif., to look over the barley nurseries. He also visited the Sherman County Branch Station at Moro, Oreg., where because of the long continued drought this spring, the crop yield will be very low, and the Aberdeen Substation at Aberdeen, Idaho, where, at the time of his visit (June 21) the crops were well advanced toward maturity. On the way back to Washington Doctor Harlan visited the experiment stations at Colby, Hays, and Manhattan, Kans., to look over the cooperative barley experiment plats.

- Dr. H. B. Humphrey, pathologist in charge of cereal disease investigations, returned June 24 from a 17-day trip through the New England States, New York, New Jersey, eastern Pennsylvania, and northern Delaware, in company with N. F. Thompson, pathologist in charge of the chemical eradication of common barberry. In the course of the trip, which was made by automobile, Doctor Humphrey and Mr. Thompson made observations on the barberry and buckthorn plantings in Highland Park, Rochester, N. Y.; Harvard Yard and the Arnold Arboretum in Massachusetts; on the campuses of the universities of Vermont and Maine; in three large nurseries on Long Island; and in the Andorra Nurseries in Philadelphia. Particular attention was given to the areas of escaped barberries throughout the territory. Colorimetric analyses of soils were made and notes taken on the several floristic and ecologic factors which characterized certain areas of escaped barberry and buckthorn bushes. Observations and notes also were made on cereal-crop conditions throughout the area covered. At Wilmington, Del., Doctor Humphrey inspected the extensive cereal seed-treatment nurseries of E. I. Du Pont de Nemours & Company, where Mr. Gooding, employed by the company in cooperation with the Delaware Agricultural Experiment Station, has been carrying on a number of cooperative studies on the efficacy of standard and newly developed fungicides as preventives of cereal smuts.
- Dr. F. E. Kempton, pathologist in charge of barberry eradication, spent the last three days of June in southwestern Virginia. At Wytheville he conferred with officials of the Virginia Agricultural Experiment Station and farmer cooperators concerning the distribution of common barberry bushes and the control of black stem rust by their eradication. He also made observations on the condition of wheat and the prevalence of stem rust in Montgomery and Augusta counties.
- Karl P. Link has been appointed field assistant, effective July 1, in the cereal-disease investigations conducted in cooperation with the Wisconsin Agricultural Experiment Station at Madison, Wis.
- Dr. E. B. Mains, agent in the leaf-rust investigations in cooperation with the Purdue University Agricultural Experiment Station, arrived in Washington June 24 to confer with members of the Office staff and to take notes on the experiments with leaf-rust resistance in wheat at the Arlington Experiment Farm. Dr. Mains left June 29 on the return trip to La Fayette, Ind.

John H. Martin, agronomist in western wheat investigations, writes from Akron, Colo., on June 24 that crops at the United States Field Station, including wheat, oats, barley, and rye, are almost in full head and that rye probably will be ready for harvest by July 5. General harvest probably will not start before July 12. Crops, particularly spring wheat, are badly in need of moisture. Mr. Martin expects to leave Akron about July 20 to take notes and harvest cereal varieties in the winter-hardiness nurseries at the field stations in the northern tier of States.

Miss M. L. Martini, assistant in barley investigations, returned to Washington June 30.

Marion T. Meyers has been appointed agent, effective July 1, to assist in the cooperative investigations in connection with corn improvement at the Chio State Department of Agriculture, Columbus, Ohio.

M. N. Pope, agronomist in barley investigations, who left June 28 for the Aberdeen (Idaho) Substation to study the barley varieties grown in the cooperative barley nursery, also will go for the same purpose to Ames, Ia., Bozeman, Mont., Fargo, N. Dak., and St. Paul, Minn., and probably will be in the field until the first part of August.

Glen Reed has been appointed field assistant, effective July 1, to assist with the cereal experiments at the Woodward Field Station, Woodward, Okla.

Jerome P. Seaton has been appointed field assistant, effective July 1, to assist in the cereal experiments at the Arlington Farm, Rosslyn, Va.

Marion A. Smith, formerly field assistant in barberry eradication in Iowa, has been appointed agent, effective July 1, to succeed Jesse H. Muncie as State leader of the barberry eradication campaign in Iowa, with headquarters at Ames.

Ralph R. St. John has been appointed field assistant, effective July 1, in the cooperative research in cereal diseases conducted at the Purdue University Agricultural Experiment Station, La Fayette, Ind. He will take the place of John F. Trost, who will be on leave of absence without pay while engaged in graduate study at the University of Minnesota for the year beginning July 1,1924.

The appointment of <u>Dr. William H. Weston</u>, <u>Jr.</u>, formerly pathologist in charge of the investigation of downy mildews, was terminated June 27, the particular line of research in which he was engaged having been completed.

Ralph M. Williams was appointed field assistant, effective June 23, in the cooperative flax investigations conducted at the Northern Great Plains Field Station, Mandan, N. Dak.

Appointments of field assistants, effective July 1, have been made for the barberry eradication campaign in the following States: Colorado, 1; Illinois, 18; Indiana, 17; Iowa, 14; Michigan, 33; Minnescta, 12; Montana, 12; Nebraska, 8; North Dakota, 14; Ohio, 29; South Dakota, 12; and Wisconsin, 27. In the issue of the Courier to be dated July 10 there will appear an outline of the organization and personnel of the barberry eradication project for the fiscal year beginning July 1, 1924.

MANUSCRIPTS AND FUBLICATIONS

A manuscript, entitled "Cereal Breeding at Ames," is a contribution by

L. C. Burnett, for publication in the Yearbook of the Iowa State Department of

Agriculture.

A manuscript, entitled "Iojap Striping, a Heritable Chlorophyll Defect of Maize," by Merle T. Jenkins, was approved June 25 for publication in the Journal of Heredity.

The paper, entitled "Supernumerary Spikelets in Mindum Wheat," by <u>F. A.</u>

<u>Coffman</u>, appears in the Journal of Heredity, v. 15, no. 4, p. 187-192, fig.

30-33. April, 1924. (The number was received June 24, 1924.)

Bulletin No. 375 of the California Agricultural Experiment Station, entitled "Results of Rice Experiments at Cortena, 1923, and Progress in Experiments in Water Grass Control at the Biggs Rice Field Station, 1922-23," by Carroll F.

Dunshee and Jenkin W. Jones, has just been received from Berkeley. (The investigations conducted at the Biggs Rice Field Station are planned, financed, and directed by the Office of Cereal Investigations of the Bureau of Plant Industry, U. S. Department of Agriculture, and are conducted by Jenkin W. Jones, Agronomist.

- Anonymous. Lyspletsyge hos Havre. (Light-spot disease in oats.) Tidsskr. f. Planteavl. 28: 561-562. 1922.
- Arrhenius, O. Forsök till bekämpande av havrens graaflácksjuka. (Experiments with combating the gray-spot disease in oats.) Medd. No. 244 Central. Anst. försöks. jordbr. Landtbr. Bot. No. 27, p. 3-17. 1923.
- Burk. Zur Steinbrandbekämpfung des Weizens. (Combating bunt or stinking smut of wheat.) (English abstract.) Ztschr. Pflanzenkrank. 33: 193-240. 1923.
- Gassner, G. Untersuchungen über die Abhängigkeit des Auftretens der Getreideroste vom Entwicklungszustand der Nährpflanze und von äusseren Faktoren. (Investigations on the dependence of the occurrence of the cereal rusts on the developmental stage of the host plant and on external factors.) Centbl. Bakt. (II): 44: 512-617. 1915.
- Hiura, M. Investigations on flax anthracnose. Sappro Noringakkwai-ho (Jour. Soc. Agr. & For. Sapporo, Japan). v. 15, no. 64. p. 1-23. 1923.
- <u>Kitunen</u>, <u>E</u>. Untersuchungen über den Haferbrand und die Brandanfälligkeit der verschiedenen Hafersorten. (Investigations of smut in oats and the susceptibility of different varieties of oats to the disease.) Agr. Ekon. Försök. Finland. no. 15, 127 p. 1922. (Abstract.)
- <u>Lindhard</u>, <u>E</u>. Zur Genetik des Weizens. Eine Untersuchung über die Nachkommenschaft eines im Kolbenweizen aufgetretenen Speltoid-Mutanten. (On the genetics of wheat. A study of the progeny of a speltoid-mutant occurring in Kolb-wheat.) Hereditas. 3: 1-90. 1922.
- Müller, K., and Hultsch, M. Ueber leicht und mit geringen Mitteln in der Praxis auszuführende Methoden der Getreidebeizung. (Methods of treating seed with fungicides in an easy and cheap manner in practice.) Deut. Landw. Presse 50: 328. 1923.
- Popoff, M. Erhöhung des Ernte-ertrages durch Stimulation des Saatgutes. (Increasing the crop by stimulating the seed.) Nassauer Land. 105: 374-375. 1923.
- Tischler, G. Über latente Krankheitsphasen nach Uromyces-Infektion bei Euphorbia Cyparissias. (On latent phases of disease in Euphorbia cyparissias caused by Uromyces.) Bot. Jahrb. Engler 50 (Suppl.): 95-110. 1914.
- Tschermak, E. Erfahrungen bezüglich Gelb-rostbefalles bei frühschossendem Getreide. (Experience with yellow-rust attacks upon early earing cereals.) Deut. Landw. Presse 50: 327-328. 1923.
- Zade, A. Experimentelle Untersuchungen über die Infektion des Hafers durch dem Haferflugbrand (<u>Ustilago avenae</u> Jens.). (Experimental investigations on the infection of oats by <u>Ustilago avenae</u> Jens.) Fühlings Landw. Ztg. 71:393-406. 1922.
- The above list of translations of foreign articles on cereals and cereal diseases supplements the lists found in the Cereal Courier, 13: 12-15, 52, 69 and 225-226; 14: 38, 39 and 99-100; 15: 11-13 and 46-47. The translations are available in the library of the Bureau of Plant Industry.

SPECIAL MEMORANDA

Attention is called to the following Memorandum for Heads of Offices from the Chief of the Bureau of Plant Industry, dated June 26, 1924.

June 26, 1924.

MEMORANDUM FOR HEADS OF OFFICES.

Gentlemen:

2:

In a number of cases the submittal of reimbursement vouchers has been very much delayed, resulting in uncertainty in the financial standing of various projects and generally tending to interrupt effective administration. Your attention is called to the fiscal regulations which assume the submittal of monthly accounts covering reimbursements, with the exception of temporary special disbursing agents who submit their accounts quarterly. It is important that accounts be submitted monthly and in all cases within 30 days after the close of a quarter. If for any reason this is not practicable, a satisfactory explanation should be made. Your hearty cooperation is requested.

Very truly yours,

Wm. A. Taylor,

Chief of Bureau.

Particular attention is called to the following announcement by Prof.

A. F. Vass, agronomist of the College of Agriculture and the Agricultural Experiment Station of the University of Wyoming, Laramie, Wyo.

ANNOUNCEMENT OF AGRCNOMY CONFERENCE

University of Wyoming

Laramie, Wyoming - July 21, 22, 23, 1924.

The Eighth Annual Agronomic Conference of the Western States (Western Branch of the American Society of Agronomy) will be held at the University of Wyoming on July 21, 22, and 23.

The Conference this year will include the workers in agronomy in the Great Plains States as well as those of the Eleven Western Range States. The leading agronomists from the U. S. D. A. at Washington will be with us, as will also many of the U. S. D. A. men located on stations in the West.

The papers presented will be along lines of soil investigations, cash crops, forage crops, and range improvement; and will be of interest to the extension agronomists, county agents, and agricultural specialists, as well as station men. One session will be devoted to the work and problems of the extension agronomists, at which time the plans for the Tucson Conference on Range Improvement will be discussed.

Those having papers to present should inform the committee at an early date, giving the title of the paper, and what will be needed for its presentation. These must be in before the final program can be prepared. Papers presented in person will be given preference over those sent in to be read.

The dates of the Conference permit those who wish to see the Frontier Days in Cheyenne July 22-25 to do so. Those coming from the north, east and south will return by way of Cheyenne between those dates.

An auto trip to Centennial (the platinum mining camp) and through the Medicine Bow National Forest to the Snowy Range (altitude 12,000) is planned for the closing afternoon and evening.

The committee would like to know if you can be present and what your topic for discussion will be.

A. F. Vass,

Professor of Agronomy.

TO THE STAFF OF CEREAL INVESTIGATIONS

I am glad to take this opportunity to express my appreciation of the hearty cooperation, amounting in some cases to sacrifice, which the staff has shown in connection with necessary budget reallotments toward the end of the fiscal year which closes today. This cooperation has made it possible to close the year without severe injury to any project or field station and with the greatest possible efficiency and progress when all our lines of work are considered as a whole.

Budget allotments for the fiscal year beginning July 1, 1924, have been made and all persons concerned have been notified. While the allotments may not be as large as desired, or as large as were given in the year just closed, they are the best that can be provided in view of our reduced appropriation. They must not be exceeded without express authorization. As the coming fiscal year progresses toward its close it may be possible to expand in some cases because of contractions in others, but all such readjustments necessarily will wait until next spring

The field staff will be greatly interested in reclassification. A discussion of the status of the bill passed in the last Congress but not signed will be found in The Official Record of the United States Department of Agriculture for June 25. The executive officers of the Government are working out the plans whereby the necessary funds can be provided for the six-month period until Congress reassembles. This work is putting a heavy additional burden on the Department, and it is hoped and expected that the field staff will be patient while the adjustments are being made and not add to the burden by unnecessary correspondence on this subject.

With best wishes for the new fiscal year, I am,

Very sincerely yours,

Carleton R. Ball.

Cerealist in Charge.

PROJECT REPORTS

OAT INVESTIGATIONS

(T. R. Stanton, Agronomist in Charge.)

Fall-sown Oats at Arlington Experiment Farm.

The unusual cold, wet weather of April and May has been favorable to fall-sown oats, but the maturity of the crop has been retarded from two to three weeks. Most of the different varieties and selections have made a remarkable recovery, however, from the very backward and poor condition which they showed in March. As a result excellent yields apparently will be obtained, particularly from the earlier varieties and selections.

Among the 96 varieties and strains which are being grown in duplicate 3-row nursery blocks some are of special interest. Several selections from Fulghum, which represent what appears to be a winter form of that variety, are of considerable promise. The plants are more spreading in early growth, produce more tillers, and are of a deeper green than those of the original Fulghum. These strains also mature a little later but in color and other kernel characters they are not greatly different. Furthermore, most of these winter types appear to be less variable than the parent variety. One or two of the highest yielding of these Fulghum strains will be included in the varietal experiment in triplicate fortieth-acre plats next year.

A strain of the Culberson variety, in which the plants are decidedly hairy, has been isolated and grown for several years. Whether this extensive hairiness is correlated with cold resistance or other desirable qualities remains to be determined. In most other characters it is similar to the Dwarf Culberson variety.

Some of the numerous selections from crosses between Fulghum and Dwarf Culberson, Fulghum and Hatchett, etc., continue to be of promise. Despite the trying climatic conditions of February and March very little winterkilling occurred in any of these strains. Apparently the cold resistance of the hardier varieties, Dwarf Culberson, Hatchett, etc., has been combined to some extent with the earliness of Fulghum in a number of these strains.

The experiment to determine the cause for the occurrence of "false wild" oats in the Fulghum variety is being continued this year. Heads are being bagged in progenies grown from bagged parental plants. It is believed that after several generations, if false wild oats continue to appear in strictly self-fertilized strains, additional evidence will be obtained in support of the theory that these aberrant forms arise by mutation.

The two new varieties, Custis and Lee, officially named last year, representing selections from a cross between Aurora and Winter Turf, appear very promising and probably will produce the highest yields of all the varieties in field plats.



Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16

July 10, 1924

Personnel (July 1-10) and Field Station (June 16-30) Issue

PERSONNEL ITEMS

Miss Esther S. Erickson, of Minneapolis, was appointed July 1 as clerk in the cereal-rust investigations conducted in cooperation with the Minnesota Agricultural Experiment Station, at University Farm, St. Paul. Miss Erickson will fill the place of Miss Laura T. Hamilton, who is on leave without pay.

- Dr. A. G. Johnson, pathologist in charge of the investigations of diseases caused by imperfect and sac fungi, returned July 4 from a 19-day field trip in Indiana, Illinois, Wisconsin, Minnesota, and North and South Dakota. In Indiana and Illinois the cooperative corn-disease investigations were found to be progressing favorably, although the cold spring has retarded the crop considerably. In Wisconsin and Minnesota the spring conditions have been very favorable for the development of the stripe disease of barley. In Wisconsin barley scald (Rhynchosporium secalis) was found more abundant in certain fields than it has been noted in that State before. At Fargo, N. Dak., flax wilt was developing abundantly in susceptible varieties of flax while resistant varieties were progressing favorably. Pasmo was beginning to develop on young flax plants growing near old pasmo-infested flax straw. At Brookings, S. Dak., no pasmo was noted on the plat of flax sown with pasmo-infested seed treated with formaldehyde. Untreated controls were purposely not placed at Brookings because it is hoped to secure disease-free seed of this strain of flax.
- <u>Dr. F. E. Kempton</u>, pathologist in charge of barberry eradication, will leave July 12 by automobile to make observations on the prevalence of stem rust and its relation to the occurrence of the common barberry and to inspect and supervise field work in the barberry eradication area of the 13 North-Central States. Doctor Kempton also will discuss with Federal, State and County officials the results of the campaign and the making of plans for the continuation of eradication.
- R. W. Leukel, pathologist in cereal-disease investigations, made a trip to Upperville, Fauquier County, Va., on June 28 to examine barley fields reported to be badly infected with stripe disease. Of the plants examined about ten per cent were found to be diseased. Arrangements were made with one farmer to send in seed for experimental purposes. The barley is of the Arlington beardless variety, seed of which was obtained from T. W. Wood & Sons, seedsmen, Richmond, Va., five years ago.

T. R. Stanton, agronomist in charge of oat investigations, wrote from Pullman, Wash., on June 29 that he and J. Allen Clark, agronomist in western wheat investigations, had conferred with M. A. McCall at Moro, Oreg., June 25 and 26. The crops at Moro were almost completely burned out. There was little left in the way of oats. Many of the oat plants had never developed permanent roots but had grown entirely from the seminal roots. At Pendleton, Oreg., wheat was found to be in better condition than at Moro. However, because of the frost in May and the long drought the yield probably will be reduced by one-half or more. Fred Bennion, County Agent of Umatilla County, Oreg., thought that the crop in that county would be about 50 per cent of last year's crop or not more than 3,500,000 bushels. In all of eastern Washington crops also are burned out by the dry weather; probably only about 50 per cent of a crop will be harvested.

Mr. Stanton also visited western Washington, where there likewise has been a lack of sufficient rainfall. At the time of his visit; it was too early to see at their best the oats on the LaConner Flats in Skagit County. At Pullman, Wash., several good fields of Markton oats were seen. The variety compared very favorably with others and the officials of the Washington Agricultural Experiment Station are much pleased with it.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Natural Crossing in Cats at Akron, Colorado," by T. R. Stanton and F. A. Coffman, was approved July 7 for publication in the Journal of the American Society of Agronomy.

Page proof of Department Circular 324, entitled "Markton, an Oat Variety Immune from Covered Smut," by <u>T. R. Stanton</u>, <u>D. E. Stephens</u>, and <u>E. F. Gaines</u>, was read July 8.

The article, entitled "Effects of the Modified Hot-Water Treatment on Germination, Growth, and Yield of Wheat," by <u>V. F. Tapke</u>, appears in the Journal of Agricultural Research, v. 28, no. 1, p. 79-97, 5 pl. April 5, 1924. (The number was received July 3).

RUST INVESTIGATIONS (Dr. H. B. Humphrey, Pathologist in Charge)

Barberry Eradication. - Dr. F. E. Kempton, Pathologist in Charge.

The barberry eradication project was organized by the Office of Cereal Investigations in the spring of 1918 and is now beginning its seventh year. The eradication area comprises 13 of the North-Central grain-growing States. The cooperating agencies are: Extension Service, U. S. Department of Agriculture; Office of Horticultural Investigations, U. S. Department of Agriculture; the extension divisions and experiment stations of the colleges of agriculture; the State and County farm bureaus; the State departments of agriculture, or other law-enforcement agencies of the States; and the Conference for the Prevention of Grain Rust.

From July 1, 1918, to June 30, 1922, the annual appropriations were about \$150,000. On July 1, 1922, an increased appropriation amounting to \$350,000 became available for the fiscal year. For the fiscal year beginning July 1, 1923, a fiscal appropriation of \$425,000 was made. Of this amount \$125,000 became available only when met by equal funds furnished by the States, and cooperating agencies. The \$411,315 fiscal appropriation for 1924-25 also stipulated that \$111,315 must be met by equal funds furnished by the States and cooperating agencies. This amount has been certified and the entire appropriation became effective July 1, 1924.

CRGANIZATION AND PERSONNEL July 1, 1924.

Administrative

Washington, D. C. Office of Cereal Investigations, Burcau of Plant Industry, U. S. Department of Agriculture. Pathologist in Charge, Dr. F. E. Kempton; Assistant, Lynn D. Hutton.

Field Operations

<u>Publicity</u>. Cartoonist and illustrator, G. D. George; assistant pathologist, Donald G. Fletcher, cooperating with the Conference for the Prevention of Grain Rust, 510 McKnight Building, Minneapolis, Minn.

<u>Investigations</u>. Studies of the ecology and morphology of common barberry bushes and investigations of methods for their eradication by chemicals: Pathologist in charge, Noel F. Thompson, State Capitol Annex, Madison, Wis.; chemist, Dr. E. R. Schulz; field assistant, Allan D. Dickson.

Studies of barberry species and hybrids: Assistant landscape architect, B. Y. Morrison, Bell, Md., and J. H. Craigie, University Farm, St. Paul, Minn.

Epidemiology studies: Collaborating agent, Dr. E. C. Stakman; agent in charge, Edmund B. Lambert, University Farm, St. Paul, Minn.; field assistants, Wallace Butler, Jonas J. Christensen, Frank D. Frolik and E. H. Ostrom.

Studies of the distribution of barberries in States bordering the eradication area and their relation to the spread of stem-rust: Missouri, - field assistants, John R. Fitzsimmons and Charles E. Brookhart; Kansas, - field assistants, H. H. Haymaker and R. V. O'Neil.

Colorado: Department of Botany, Agricultural College, Ft. Collins. State leader, Ernest A. Lungren; cooperating agent, Roud McCann, Director of Extension; collaborating pathologist, C. D. Learn; State law-enforcement agent, Dr. C. P. Gillette, State Entomologist; stenographer-clerk, furnished by the State; field assistant, Bruce J. Thornton.

Illinois: Post Office Building, Urbana. State leader, Gordon C. Curran; cooperating agent, H. W. Mumford, Director of Extension; collaborating pathologist, Benjamin Koehler; State law-enforcement agent, P. A. Glenn, Chief Inspector, State Department of Agriculture; stenographer-clerk, Mary A. Hopkins; field assistants:

Biddle, Chester B.
Black, Luther A.
Borger, Roy H.
Clark, Alvin W.
Clark, Francis L.
Cornwell, Earl D.
Crabb, Jarred V.
Craigie, Lewis E.
Duncan, Walter G.
Fielder, Virgil B.
Fobes, Franklin E.
Garrison, Earl R.

Griffin, Edwin D.
Griffin, Stephen W.
Grumke, Edward C.
Hafenrichter, Atlee L.
Hardy, Max B.
Hayden, Lyle J.
Hawkes, Joseph B.
Holt, Orval C.
Jardine, Roy
Little, Elmer P.
Muncie, Wendell S.
Pinkley, George D.

Powell, Chester R.
Rawlings, Cecil O.
Richardson, John L.
Roll, Roy H.
Rulla, Loyal L.
Seward, John H.
Solheim, Wilhelm G.
Stark, Orton K.
Tasker, Roy C.
Twardock, James A.
Young, Otis B.

Indiana: Botany Department, Purdue Agricultural Experiment Station, La Fayette. State leader, Wayne E. Leer; cooperating agent, G. I. Christie, Director of Extension; collaborating pathologists, Dr. H. S. Jackson and Dr. E. B. Mains; State law-enforcement agent, Frank N. Wallace, State Entomologist, Indianapolis; stenographer-clerk, Josephine M. Waldron; field assistants:

Braybrook, Laurence L. Castell, Stanley Christie, John G. Cross, Walter M. Dougherty, Lawrence A. Eliason, Everett J. Emerson, Virgil R.

Hazel, Edward E.
Holcomb, Harold R.
Johanningsmeier, Otto G.
McCally, Ross L.
McCrea, Forrest D.
McKenzie, Glen H.
Maggart, Ralph J.

Miller, Charles H.
Rogers, Ralph H.
Sewell, Gerald S.
Thomas, Donald B.
Wegel, Harold J.
Worth, Bruce V.
Young, Wilfred B.
Zumstein, Reginald B.

Iowa: Iowa State College, Ames. State leader, Marion A. Smith; cooperating agents, R. K. Bliss, Director of Extension, and Donald R. Porter, Extension Pathologist; collaborating pathologists, Dr. I. E. Melhus and S. M. Dietz; State law-enforcement agent, Dr. C. J. Drake, State Entomologist; office assistant, Harold W. Larson; field assistants:

Abbott, Ernest V.
Burns, Morrison H.
Earhart, Harry C.
Ficke, Christ W.
Fitzpatrick, Leo S.

Inman, Forrest G. Leach, Lysle D. Mendell, Frank H. Morling, Edgar S. Morris, LeRoss

Raleigh, Walter P. Reeves, Robert G. Rogers, Charles F. Thompson, James W.

Michigan: Agricultural College, East Lansing. State leader, Walter F. Reddy; cooperating agent, R. L. Baldwin, Director of Extension; State law-enforcement agent, L. R. Taft, State Inspector of Nurseries; stenographer-clerk, Bernice L. Waterman; field assistants:

Birch, Herbert H.
Boyd, James L.
Braamse, Byron L.
Buckner, William C.
Edmunds, Allen T.
Francis, Milton J.
Garver, John E.
Gofton, Claude R.
Hart, Hildred J.
Horwood, Russel E.
Hultman, Vivian J.
Humeston, Fred R.

Kidman, James L.
Kuhn, George W.
Lenz, Carl H.
Lewis, Herdis L.
Lioret, Ernest L.
McIntyre, Charles W.
Meyer, Leslie J.
Meyer, Otto E.
Moore, Lucius H.
Parson, Howard E.
Reynalds, Gerald H.
Richards, Rolland G.

Rieman, Robert S.
Ripatte, Carl H.
Salisbury, Chester F.
Smith, Roscoe G.
Stewart, Dewey
Strong, Forrest C.
Swartz, Delbert
Teeter, Lowell E.
Ullenbruch, William J.
Warner, Robert E.
Wedgeworth, Herman H.
Williams, Garnet C.
Wood, Warren W.

Minnesota: University Farm, St. Paul. State leader, Leonard W. Melander; cooperating agent, F. W. Peck, Director of Extension; collaborating pathologists, Dr. E. M. Freeman and Dr. E. C. Stakman; State law-enforcement agent, A. G. Ruggles, State Entomologist; stenographer-clerk, Helen W. Barrett; field assistants:

Anderson, C. George Davies, P. A. Dow, Lewis L. Dunn, Stuart J. Gilmer, Paul M.

Higgins, Floyd L.
Hirt, Ray R.
Lefebvre, Camille L.
Morris, Harold P.
Oleson, Homer C.

Peterson, Arthur G.
Quam, Dwight L.
Schaal, Lawrence A.
Schaub, Benjamin H.
Steinbauer, George P.
Van Cleve, Charles W.

Montana: State College of Agriculture, Bozeman. State leader Warren N. Christopher; cooperating agent, F. S. Cooley, Director of Extension; collaborating pathologist, H. E. Morris; State law-enforcement agent, J. C. Woods, Horticultural Inspector; Florence L. Markin, agent; stenographer-clerk, Carlie Reddout; field assistants:

Anderson, Olaf C. Bell, Edward J. Forbes, Jacob W. Fox, David E.

Freeman, Monroe E. Griffith, Clement H. Jennison, Harry M. Jones, Gomer V.

Nebel, Floyd A.
Peterson, Millard E.
Popham, William L.
Ross, Richard C.
Wisner, Frank B.

Nebraska: College of Agriculture, University Farm, Lincoln. State leader, Albert F. Thiel; collaborating agent, W. H. Brokaw, Director of Extension; collaborating pathologist and law-enforcement agent, Dr. G. L. Peltier; stenographer-clerk, Burnetta Rose; field assistants:

Adams, Harold M.
Dittus, Benjamin F.
Friedli, Jacob
Giberson, Gayl E.

Hepperly, Jay W.
Kotlar, Edmund J.
Morford, Vilas J.
Pinkerton, George R.

Riddick, Julian W. Rohrbaugh, Percy W. Scrivner, Forrest J.

North Dakota: Agricultural Experiment Station, Agricultural College, P. O. State leader, George C. Mayoue; cooperating agent, G. W. Randlett, Director of Extension; collaborating pathologist, H. L. Bolley; State law-enforcement agent, Joseph A. Kitchen, Commissioner of Agriculture; stenographer-clerk, furnished by the State; field assistants:

Bairey, George B.
Boise, Philip H.
Carlson, Robert H.
Deach, Elmer J.
Denis, Daniel J.

Doersch, Earl A.
Herbison, Herbert W.
Johnson, Arthur J.
Johnson, Leon M.
Narum, Leslie F.

Rumpeletes, Benjamin P. Severson, Albert S. Severson, Leonard N. Trumbull, Francis W. Welch, Seth A. Wells, Charles F.

Ohio: Botany Department, Ohio State University, Columbus. State leader, John W. Baringer; cooperating agent, H. C. Ramsower, Director of Extension; collaborating pathologist, W. G. Stover; State law-enforcement agent, Richard Faxon, Chief of the Division of Plant Industry; stenographer-clerk, Mrs. M. C. Joice; field assistants:

Anderson, Lewis G.
Anderson, Malcolm G.
Aneshansel, Carl W.
Atwood, Harry
Beck, Byron B.
Border, Nile M.
Campbell, Robert J.
Christy, Doland F.
Cowdrey, George C.
Cryder, Bernard N.
Eckhert, Theodore S.

Gilmore, R. Clark
Hagelbarger, Ralph H.
Hambleton, Edson J.
Hummon, Clair T.
Humphrey, Sylvester S.
Jackson, Earl K.
Johnson, Howard W.
Jones, Thomas H.
Kent, Malcolm F.
Lafferty, Halsey H.
Leavengood, Joseph D.

Limber, Donald P.
Macbeth, Gilbert
Minneman, Paul G.
Parish, Cloyce L.
Porter, Herman G.
Rowalt, Elmer M.
Taylor, Clinton L.
Tissot, Archie N.
Violet, Charles O.
Wagner, John A.
Wagner, Philip O.

South Dakota: College of Agriculture, Brookings. State leader, Raymond O. Bulger; cooperating agent, W. F. Kumlien, Director of Extension; collaborators, Dr. A. N. Hume and Dr. A. T. Evans; State law-enforcement agent, H. C. Severin, State Entomologist; stenographer-clerk, Fmma Fairchild; field assistants:

Aldrich, Merton Q.
Brictson, Abner J.
Coffey, Frank
Errington, Paul L.
Fairchild, Jasper S.
Hume, Albert T.

Kurtz, William A.
Mateer, Harry A.
Mears, Kirk T.
Michaels, Walter H.
Mossing, Leo K.
Murray, Bernard W.

Murray, Joe F. Rice, Donald T. Walter, Glen L. Welch, Farl I. Welch, Frank F.

Wisconsin: Department of Agriculture, State Capitol Annex, Madison. State leader, William A. Walker; cooperating agents, K. L. Hatch, Director of Extension, and R. E. Vaughn, Extension Pathologist; collaborating pathologists, Dr. L. R. Jones and Dr. J. G. Dickson; State law-enforcement agent, Stanley B. Fracker, State Entomologist; stenographer-clerk, Ida T. Goul; field assistants:

Anderson, John P.
Bourn, Leslie S.
Burnham, Russel C.
Cheney, Lellen S.
Corbett, Kenneth H.
Damsheuser, Carl W.
Eagleburger, Lawrence S.
Flueck, Herbert A.
Harrington, John T.
Harrison, Carter M.
Hill, Harry E.

Holt, Earle F.
Horne, Daniel O.
Horton, George W.
Kaasa, Leonard J.
Kletzien, Seymour W.
Knutson, Arthur M.
Longenecker, George W.
McAleavy, Charles J.
McKay, Frank D.
Nightingale, Gordon T.
Otterson, Henry

Parmele, Harris B.
Pelton, J. LeRoy
Schaefer, Herbert C.
Seymour, Walter J.
Stevens, Henry
Stiles, Hugh R.
Strandskov, Herluf H.
Wackman, Ralph B.
Weyker, Clem J.
Zaumeyer, William J.

Wyoming: College of Agriculture, University of Wyoming, Laramie. State leader, Ralph U. Cotter; cooperating agent, A. E. Bowman, Director of Extension; State law-enforcement agent, A. D. Faville, President, State Board of Horticulture; stenographer-clerk, furnished by State.

Original survey completed. Field operations suspended until the spring of 1925.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (June 30) The harvest of wheat, oats, and rye is now in progress. The wheat and rye have an unusually heavy growth of straw, and the ratio of grain to straw is believed to be low. On the other hand, oats are maturing normally and most of the varieties should give good grain yields. Septoria, scab, and black-chaff are all prevalent in the wheat, particularly the former. Rogueing of the wheat varieties for chaff color has been impossible because of Septoria. The infected spikes appear to have ripened prematurely, the kernels being poorly developed; as the infection often amounts to five or more per cent, it is expected that the quality as well as the quantity of the grain will be poor.

Dr. E. B. Mains, agent in the leaf-rust investigations in cooperation with the Purdue University Agricultural Experiment Station at La Fayette, Ind., spent several days of the past week with Doctor Leighty in examining the extensive wheat and rye nurseries maintained in connection with the breeding of leaf-rust resistant strains of these two crops. The rust infection this season was not so uniform as usual and it was difficult to obtain data. Several promising wheathybrid selections are being increased for more extensive tests.

Selections from wheat-rye hybrids resembling wheat but apparently pure for the hairy-neck character of the rye parent were obtained this season.

(F. A. Coffman, July 1)

Varieties in the oat nursery were harvested by June 30, with the exception of the later-maturing strains consisting mostly of Winter Turf. There was very little lodging and the conditions were comparatively favorable for harvesting. The yields from most rows will be quite satisfactory. With a continuance of favorable weather it is possible that the harvest of the oat nursery will be finished by July 5. The birds did very little damage to the oat plats this year.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (July 3) The weather of the past few weeks has been favorable for small grains. There has been plenty of moisture and the temperatures have not been too high. The oat crop on the University Farm will not be heavy owing to late sowing. The barley in the nursery looks very well and is beginning to head. Wheat is headed out and should make a very good crop.

Some of the new selections of wheat are showing up very well and it looks as though some of them will be worth increasing so that we may get them into the hands of the farmers as soon as possible.

The increase plats of rwe which are the results of plant selection are showing up very well and it is apparent that at least one or two of the strains will be an improvement over the commercial variety.

The wheat and oat hybrids in the greenhouse have all been harvested and from these some new hybrids of value have been obtained.

During the spring months Dr. Ernest Dorsey obtained a great deal of material from the plants in the greenhouse for cytological investigations.

For the past few days V. F. Tapke, of the Office of Cereal Investigations, and Dr. R. S. Kirby, of the Pennsylvania State College, have been here in the interests of experiments with loose smut of wheat. Mr. Tapke inoculated a number of varieties with loose smut and Doctor Kirby took notes on cooperative experiments on loose smut. A thorough examination of Forward wheat in the increase plat did not reveal any smutted heads. Last year Doctor Kirby examined all the fields of Forward wheat and did not find any smut; apparently it is highly if not entirely resistant to loose smut.

Dr. F. P. Bussell has returned from Pavis, Calif., where he and Dr. R. A. Emerson harvested the wheat that is being grown for us on the University Farm. The samples taken have already arrived for examination.

Last week the County Agents in attendance at the Field Day at Cornell University visited our cereal improvement work.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (June 12) Dry weather has continued in the vicinity of Crowley. According to the records of the Experiment Station only a very light shower of rain fell in the past week. Temperatures are getting higher each week, the maximum having already reached 36 degrees F., which is one degree higher than the highest temperature recorded for last summer. The high temperature and bright sunshine are undoubtedly having a good effect on rice, judging from the fine appearance of the fields.

At the Station, rice on land where a rotation with soybeans has been conducted for a number of years has been up for 25 days. Irrigation water has not been applied; the plants are vigorous, however, and the fields are practically free from weeds. It is the practice at the Station to delay irrigation water on these fields until the plants have had a dry growth of 30 days.

The plats devoted to fertilizer experiments are being irrigated. The water is applied 15 days after germination, because delayed germination will result in a heavy growth of grass, especially where acid phosphate has been applied. Standing among these plats at the present time one can readily detect those containing acid phosphate, either alone or in combination with other elements, by the dark green color of the plants and the abundance of short grass. No difference can be noted at this time between the plats containing nitrogen alone and the plats to which fertilizer has never been applied.

Among the visitors at the Station the past week were Messrs. L. H., J. F., and Leopold Noel, of Perry, Vermilion Parish, Prof. J. L. Fletcher of the Industrial Institute, La Fayette, La., with 12 members of his class in agriculture, and Mr. R. Nagan Gowda, M. S., Ph. D., of Hospet, India. Mr. Gowda is now on his way back to India after having spent seven years in the United States at the University of Illinois, Iowa State College, and the Agricultural College of Utah. Before leaving India he was graduated from the Madras Christian College, Madras.

(June 19)

According to the Station records the weather for the past two months has been very much like that of the same period in 1917, especially in the matter of precipitation. In 1917 the rainfall for April was 2.53 inches and for May, 1.38 inches. This year in April the records show 2.74 inches and in May, 1.40 inches; however, the precipitation recorded so far for the month of June is only 0.90 of an inch, as compared with 2.49 inches for the same period of 16 days for the year 1917.

It is remarkable to see the change that has taken place in the rice at the Station that has been irrigated the past few days. This rice was parched and stunted because of its long period of dry growth. It is now a rich green, and the tillers that had formed during the dry weather have grown as tall as the main part of the plant. Rice treated in this manner usually retains a vigorous appearance for the remainder of the growing season, which is seldom the case with rice flooded immediately after the young plants emerge.

The Station is having many calls from farmers who report damage from the "rice maggot". Mr. Ingram says that much of the damage thus reported is apparently due to other causes.

Edwy. S. Landry, rice specialist, Extension Division, Louisiana State University, has just returned from Evangeline Parish and reports that he and County Agent T. H. Vidrine, traveled over the greater part of the rice section of the Parish. He was interested especially in visiting rice farmers who are conducting demonstrations in the growing of Biloxi soybeans in rotation with rice. He found that most of the soybean demonstrations had been planted, but some farmers have been delayed on account of the extreme dry weather which prevented the proper preparation of the land.

Mr. Landry found the rice crop in Evangeline Parish in good condition where the water supply has been sufficient. A rather large acreage of "providence" rice is suffering on account of the dry weather, and unless rain occurs real soon the yield will be greatly reduced. Other crops in Evangeline were found in excellent condition, especially cotton, which shows little damage from drought, the fields being clean and well cultivated. It was noted that the improved method of close spacing has been put into practice by many farmers.

- T. B. Hayne, of Columbia, S. C., a student at the Medical College of Charleston, arrived last week and will assist Dr. Barber and Mr. Komp of the U. S. Public Health Service during the summer in their investigational work with malaria.
 - E. R. Kalmbach, of the U. S. Biological Survey, was a visitor on June 19.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (June 30) The extremely high temperatures of the last half of June, combined with much humidity, have been very favorable for crop growth, and the corn and cotton have made excellent progress. Cultivation and hoeing have been done from time to time and the experimental fields are looking well.

We finished the wheat harvest last week including Drs. Mains' and Leighty's plats as well as the station fields.

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (June 23) Twenty-five kernels from each of approximately 3,000 inbred ears of corn have been planted in the corn breeding plats this year. These ears are from lines selfed for the second generation in 1923. Plantings were made on May 10 and 31, about half of the ears being planted on each date.

The weather was very cold and backward following the first planting and only a fair stand was secured. The second planting came through in good shape and is looking fine. The corn crop in general, however, is still a week or ten days later than normal.

Records were taken of all forms of seedling variations that appeared when the plants were about four inches high and data now are being taken on the comparative early vigor of the different inbred lines.

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (June 26) The weather continues rainy, cloudy, and rather cool, and generally very unfavorable for corn. Corn probably is about three weeks behind normal. This, together with the fact that the majority of it is in poor cultural condition and is likely to be laid by prematurely, as well as the fact that the stand probably is little better generally than 60 per cent, does not bespeak a bumper corn crop. No doubt you have noticed that these conditions have been reflecting themselves in the corn market, and the end is not yet.

We too have been having our difficulties. The cultivation and care of experimental plats under conditions prevailing this spring has not been an enviable job. Nevertheless we have done the best we could do under the circumstances and expect to keep on the jcb until it is finished. The men have been very loyal and on several occasions have put in considerably over twelve hours.

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

<u>Purdue University Agricultural Experiment Station, La Fayette</u> (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Furdue University, La Fayette (Barberry Eradication, W. E. Leer) (June 23) Barberries were found rusted in Indiana May 3. Aeciaspores were shed about May 29. A trace of stem rust on wheat was found ten miles east of rusted barberry bushes on June 19. Further investigations of the case are to be made at once. No wild grasses or wheat were near barberries.

In 1923 stem rust was found on wheat and wild grasses on May 25.

Other reports will follow.

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (June 15) All of the larger escaped-barberry areas in that portion of Ohio which has been covered by the original rural survey have been carefully resurveyed by field scouts of the United States Department of Agriculture since April 1, 1924. Hundreds of sprouts and thousands of seedlings were treated with salt and kerosene. Large areas of escaped barberries were discovered near Amherst, Grafton, and Wellington at the time of the survey of Lorain County in April and May. All of the escaped barberries found in Lorain County have been treated. Kerosene was used in most cases.

The farm-to-farm survey of Lorain County was completed this spring. One hundred and twenty new barberry plantings were discovered within the county and all were removed or treated. In addition one-half of Highland and Fairfield counties has been covered recently by the rural survey. Almost continuous rains in May hindered progress of the rural survey. Besides cleaning up areas of escapes in western Ohio we have completed the original survey of four counties in the period from April 1 to June 30.

Leaf rust on wheat was beginning to appear in central and southern Ohio the first week in June. No uredinia of stem rust could be found by field scouts on wheat in Fairfield or Highland counties on June 12.

The following table is a summary of observations on the occurrence of rust on barberries in Ohio since Asy 16, 1924.

Results of observations for stem rust on barberries in Ohio, since May 16, 1924.

Date of Location					
Obs	ervation	County	Nearest City	Results	Names of Observer
May	20	Highland	Hillsboro	Aecia	.Beck and Lafferty
11	21	Fairfield	Lancaster	Pycnia and aecia	Speed
11	24	Highland	Greenfield	Aecia	Beck and Lafferty
11	24	Highland	Greenfield	Aecia	Cryder
11	26	Montgomery	Dayton	Aecia	Baringer
11	27	Fairfield	Lancaster	Pycnia and aecia	Hambleton
11	28	Highland	Hillsboro	Aecia	Beck and Lafferty
11	28	Highland	Hillsboro	Aecia	Cryder and Swaney
Jun	e 6	Fairfield	Sugar Grove	Pycnia and aecia	Violet
1\$	7	Fairfield	Pickerington	Pycnia and aecia	Limber
11	12	Fairfield	Carroll	Pycnia and aecia	Hambleton
11	12	Highland	Hillsboro	Aecia	Cryder and Lafferty

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (July 1) Several additional field men were started into the field today to continue the original survey for barberries in Dunn, Barron, Taylor, Price, Marathon, Lincoln, Shawano, Oconto, and Marinette counties. With but one or two exceptions the entire summer field force is now at work. Most of this force will continue the original survey, which should be completed this year.

A second survey of Walworth County will be completed this week. Many new and heavily infected bushes have been located in addition to those found sprouting from plantings previously located. A second survey also will be started immediately in Dodge and Richland counties.

The foot scouting is being continued in the area of escaped bushes at Black Earth. Occasional bushes 10 feet or more in height are being found in the outskirts of the area. Fifteen tons of salt will be shipped to Black Earth for use at that point.

A two-day conference was held for field assistants on June 27 and 28 at Madison. All phases of barberry eradication and epidemiology studies were discussed. A field trip about Madison was made by the force on which they were shown the general habit of growth of the barberry and a spread of rust from a barberry bush to quack grass.

Black stem rust has been located near barberry on Hordeum jubatum and volunteer rye in Walworth County, on quack grass at Madison, and on red top at Black Farth. No spreads of rust have been located on grains at this writing. The season has not been favorable for the spread of rust from the barberry until the last half of June. The barberries noticed were very heavily rusted. Indications are that the first pustules on grasses near barberry occurred about June 13. The weather of the last half of June was quite favorable to rust development and local epidemics of rust spread from barberry may be expected within the next ten days.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (July 3) We have made a rather extensive planting in the spring-wheat nursery again this year. Approximately 3,000 individual hybrid plant rows are being grown under an artificial epidemic of stem rust. The available biologic forms which have been found in the spring-wheat area and which are being used in producing the field epidemic are as follows: I, III, IX, XVII, XVIII, XIX, and XXI.

Approximately 1.000 individual hybrid plant rows are being grown under normal conditions (no artificial epidemic). There also are several hundred rod rows of the most promising selections grown in this nursery. No stem rust has made its appearance as yet and only a very small amount of orange leaf rust has been found.

In the rust nursery the epidemic is rather slow in developing owing to the cool season. The plats of winter wheat used for increasing inoculum have about 10 per cent infection at present. It is just beginning to appear on the spring wheat. The first pustules were found on May 10.

The lateness of the season may well be judged by the dates of heading. Last year every variety of wheat in the rust nursery had headed by June 28. This year only one variety, Khapli emmer, had headed by that time.

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKT, AHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (July 1) The weather of the last half of June was hotter and drier than in the first half of the month. The wheat harvest over the country is well under way and about one-half of the crop is in shock or stacks. The yield on the sandy land will be rather low, probably not over eight bushels per acre.

All the sorghums and broomcorn seeded in the cereal project emerged to good stands, with the exception of the milo rate-of-seeding experiments which were reseeded on June 20 and from which good stands were obtained in three and four days. The sixth date-of-seeding was sown this morning; it was necessary to run the furrow openers rather deep to get the seed into moist soil.

Thinning of the plats is progressing steadily and in a week the project should be in good condition.

Maximum temperature for the last half of June, 111° on the 18th; minimum, 55° on the 30th. Precipitation for the last half of June, 0.47 of an inch; total for the month, 1.46 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (June 16) Crop conditions in Kansas have improved since the last report, the week ending June 11 having been one of warm weather and sunshine with some scattered showers which materially benefited crops. Corn made a better growth than in any preceding week of the season but its condition was generally reported as only fair. Stands are uneven and a great deal of replanting has had to be done. Wheat harvest is expected to start in the south-central counties by June 19 and probably will extend as far north as the Kaw Valley and Saline County by June 25 but is not expected to start in the northern counties and the western third of the State before July 1. Temperatures of 100° or higher were recorded in many of the southwestern counties from June 11 to 13.

Weather conditions at Manhattan during first half of June.

Highest temperature, 97° on June 14.

Lowest temperature, 43° on June 3.

Measurable precipitation on June 1, 2, and 14, totaling 1.26 inches.

The Kansas crop report for June issued by the Kansas State Board of Agriculture in cooperation with the United States Department of Agriculture, records a slump of 20 points in May in the Kansas winter wheat crop, with a June 1 estimated condition of 68 per cent normal which offers a promise of only 113,211,000 bushels, or almost 21,000,000 bushels less than was offered on the basis of the May condition. The probable yield based on June 1 estimate was 12.04 bushels per acre, but this yield can materialize only with fairly favorable conditions from now to harvest time. The average June condition for the last ten years has been 76 per cent and the average production for the last five years has been 121,281,000 bushels. The dry cool weather during the first three weeks

of May, the army of chinch bugs in eastern Kansas, and the infestation of Hessian fly in most of the northern half of the State all had a part in the deterioration of the wheat crop. A good many correspondents also report that wheat did not stool heavily.

Following the trend toward a diversified system of farming, corn and oat acreages are both considerably larger than a year ago. There also has been a decided increase in counties of eastern Kansas in flax and in legumes; both red and sweet clover and alfalfa show increases. Timothy hay also shows a considerabl larger acreage than last year. A preliminary survey indicates that about 6,000,00 acres of corn have been planted, an increase of about 6 per cent over 1923. The June 1 condition of corn is estimated to be 70 per cent of normal, as compared wit 79 per cent on June 16 last year. The oat acreage has apparently been increased about 16 per cent over that of 1923. The June 1 condition is estimated as 69 per cent, compared with a 10-year average June condition of 82 per cent. Chinch bugs threaten serious damage to the crop unless their numbers are greatly diminished by wet weather. The barley acreage probably will be about 90 per cent as large as last year. The June 1 condition is estimated as 64 per cent of normal, compare with 84 per cent last June and a 10-year average of 92 per cent, dry weather in the heavy producing northwestern counties being responsible for this poor condition.

Experiment Station Notes.

Ten tons of salt were purchased and have been used in the eradication of bindweed on the roads and along fence rows in the new crop improvement nursery. Thinning of nursery sorghum plantings was completed on June 14.

Progress reports of Crop Improvement Project (Hatch 67) and of the False Wild Oats project (Adams 146) have been written and submitted to the Station director.

- Dr. W. H. Beal, of the Office of Experiment Stations, Washington, D. C., inspected the Station work on June 13.
 - S. D. Flora, meteorologist of Topeka visited the Station on June 9.
- H. M. Bainer, director of the Southwestern Wheat Improvement Association, Kansas City, Mo., was a Station visitor on June 14.
- W. H. von Trebra, formerly nursery foreman and student assistant in crop improvement, has accepted a position for the summer as assistant in agronomic experiments at the Colby Branch Station and left Manhattan on June 15.

We are getting an increasing number of reports of the occurrence of <u>Aegilops</u> species in Kansas wheat fields. The county agent of Barton County reports that an 8-acre field is being mowed to eradicate this plant and a farmer at Wakita, Okla. just south of Harper County, Kansas, reports large numbers of Aegilops plants in a 35-acre wheat field which was plowed under to get rid of this new weed pest.

In C. O. Johnston's winter-wheat leaf-rust nursery the stands are thin and irregular, and it does not seem likely that much leaf rust will develop this year. He has some very interesting experiments in progress on the relation of date of seeding oats to smut infection. Smut counts will be made this week in the botany and agronomy oat nurseries.

Dr. A. M. Brunson reports that C. W. Bower and H. A. Noyce have been appointed as summer field assistants for the corn project. The controlled-pollination corn nursery contains 1,532 families divided as follows:

Duplication of Colby smut nursery	250
Inbreeding and economic nursery	1078
Inheritance studies and acquisitions	204
Total	1532

The agronomic corn work, including varietal tests, time and method of planting, rate of planting, and method of cultivation is being continued as usual. Plats of 337 single rows of acquisitions from nearby States and of varietal crosses are being carried as a supplement to the variety test for observation and preliminary yield data. A rather extensive ear-to-row test with Pride of Saline corn was started this year to obtain foundation material for inbreeding work, as a study of method in corn breeding, and to study the relation between germinator table behavior and field performance under Kansas conditions. Nine hundred individual ear rows are planted in triplicate with a check every tenth row.

Hays Branch Experiment Station, Hays (A. F. Swanson) (July 1) The month of June was one of the driest on record since 1868, the total precipitation at Hays being only 0.30 of an inch. While the precipitation was very low the humidity was relatively high and the temperature moderate, except for the last week. In the last week the temperature rose to 103 and 104 degrees on two different dates.

In spite of the dry weather we shall harvest one of the largest wheat crops in the history of the Branch Station. The production of such a crop is attributable to the great amount of precipitation last fall and the soaking rains in the latter week of May.

Harvest in this section was in full swing June 30, when a large number of headers were put into the fields. There seems to be sufficient labor to take care of the wheat crop. Wages are from \$4.00 to \$5.00 a day.

The harvest on the cereal project was begun June 26. With the exception of about twenty plats all of the experimental wheat is now cut and in shock. F. D. Ruppert, field assistant, detailed from Manhattan, assisted in harvesting the nursery. Supt. L. C. Aicher kindly furnished a new binder for the cereal project, which was a big help in harvesting the crop. All of the winter wheats matured well. Yields will run from 30 to 35 bushels to the acre. No smut or stem rust was present.

- A small greenish worm has been found feeding at the nodes of the wheat plants. The pest is serious in northwestern Kansas where 75 per cent of the plants have been found infested. The same worm has been found in large numbers at Hays but the wheat crop is too far along for serious damage.
- Dr. H. V. Harlan, agronomist in charge of barley investigations, and J. H. Parker and F. D. Ruppert of the Kansas Agricultural College, inspected the barley nursery June 24. With the help of Doctor Harlan, about one-fourth of the 538 barley selections were retained as worthy of further trial in rod rows next year. It was found that the early six-row types of barley having the Coast and Stavropol characteristics are best adapted for western Kansas. Beardless or hooded types are inferior to awned types of barley.

A number of selections of beardless wheats were grown in comparison with awned types. It was noted that the beardless types are much inferior to the awned types. This has been borne out by observations made for several years. In the future only awned varieties of wheat will be grown or experimented with at the Hays Branch Experiment Station except in a minor way.

Other official visitors since June 15 have been John H. Martin, of the Office of Cereal Investigations, Professors L. E. Call, H. H. Laude, and H. R. Sumner from the Kansas Agricultural College, and Herbert H. Walkden of the U. S. Bureau of Entomology, with headquarters at Wichita, Kans.

COLORADO

Akron Field Station, Akron (Report by John H. Martin, agronomist in western wheat investigations) (July 2) Crops are badly in need of rain, no precipitation of any consequence having fallen since the last of May. Winter wheat and spring barley are not severely injured yet, where sown on corn ground or fallow, but spring wheat is burning badly. The winter-wheat nursery is still in good condition. There is still sufficient moisture in the soil for corn and sorghum as they have made very little growth as yet.

The crops in the vicinity of the Akron Field Station are in about the same condition as those on the Station but are somewhat better a few miles south of Akron.

The annual Farmers' Picnic was held at the Station on June 25; there was an estimated attendance of about 1,500 people.

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (July 1) A conference of barberry field assistants was held July 1 to discuss plans for cleaning the State of common barberries. Eradication methods were discussed; also the counties in which survey work will take place this season.

The western slope area will be resurveyed. A second survey will be made in the counties having areas of escaped bushes.

Bruce J. Thornton left on July 1 to eradicate any escapes and seedlings which may occur in the Loveland-Berthoud area. From here the work will continue southward and over on the west side.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague) (June 30) In the last 15 days 0.12 of an inch of precipitation has been recorded. The maximum temperature for this period was 91° on the 23rd; minimum, 46° on the 30th.

Rust is just beginning to show on both spring and winter wheats. The winter wheats are mature enough so that little damage will result. The damage to spring wheat will depend largely on the weather during the next week. Harvest probably will start the latter part of this week or the early part of next week. Nebr. 28 is nearly ready to cut and other varieties are turning.

Corn is being cultivated the second time. It is still somewhat smaller than usual for this time of year but is growing rapidly.

(Report by W. W. Burr, Department of Botany, College of Agriculture, Lincoln) (June 28) I was at North Platte yesterday and found the work in excellent shape. There is an excellent crop of winter wheat but more rain is needed to properly fill the grain.

There appeared to be no winterkilling at all in the winter-hardiness studies. There is a very good wheat nursery and a smaller one for oats and barley. The corn was too short yet to get much of a line on. I hope that Clark will get to North Platte within a few days, because they may be harvesting as early as the last of next week if it continues dry. No. 28 was beginning to turn.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (June 28) During the month of May city and town properties in Cass, Traill, Grand Forks, and Barnes counties were reinspected. Demonstrations were made in rural and town schools. In the publicity work special efforts have been made to meet people who have not cooperated in the campaign.

Three field men began operations on June 2 in Sargent and Richland counties. On June 16 two more field men were added to this force. In each of these counties these men will endeavor to trace bushes from rust infection on grains or grasses. Twenty-five representative farms in each of these counties have been selected where rust observations will be made twice a week in July until stem rust becomes general.

Forty-seven sprouting bushes were located on five properties, which represents five per cent of the reinspected properties. Only one new bush has been located this spring.

Up to date no black stem rust infection has been found on grains or grasses and no infected sprouts or bushes have been located.

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel) (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (June 30) Cool weather with frequent showers prevailed during most of the month of June. Cereal crops have grown slowly and are considerably behind their usual stage at this time of the year. Most of the small grains are in good condition but shorter than usual. Winter wheat varieties are beginning to head and early varieties of spring wheat, oats, and barley will be heading in a few days. Corn is about five or six inches high.

The total rainfall for June was 3.26 inches, which is slightly above normal. The evaporation has been less than usual and soil moisture conditions are excellent.

Several crosses are being made between each of the varieties of winter wheat and Dakold winter rye. Crosses also will be made between different varieties of winter wheat and later between different varieties of spring wheat.

Victor V. Sturlaugsen, a student from the N. Dak. Agricultural College, who assisted with the cereal work at Dickinson last year, began work here again June 18 as field assistant in cereal work.

On June 18 a violent windstorm, accompanied by heavy rain and some hail, passed over this part of the State. The wind especially was very violent in the vicinity of Dickinson, destroying several houses and barns. Some lives were lost as a result of the storm. At the Substation the 60-foot windmill and the pumphouse were demolished and several trees were destroyed. This is said to be the worst windstorm that has ever visited the Dickinson vicinity. No serious damage was done to cereal crops at the Substation. From five to ten per cent of the rye was broken down by the wind and hail and the corn was somewhat bruised.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (July 2) In the last half of June there was even more rain than in the first half and there was much cloudy weather. Precipitation for the period was 3.17 inches, of which over two inches fell within two and a half hours on June 18; there also was some hail which did little damage, however.

Cereal varieties are now making rapid growth though about ten days to two weeks later than last year. The early varieties of wheat, oats, and barley are heading.

The growth of corn is very perceptibly retarded because of continued cloudy weather.

Ralph M. Williams, field assistant, began work on the flax project on June 23.

The North Dakota State Convention of the American Legion convened here June 30 for three days.

The Mandan Round-up will begin today and will continue over July 4.

Maximum temperature for the last two weeks in June, 840 on the 21st; minimum, 450 June 20 and 29.

MONTANA

Judith Basin Substation, Moccesin (R. W. May) (June 30) Small grain crops look unusually well, although the spring grains are a little backward because of the cool weather. The earliest varieties of winter wheat in the nursery and plats are in full head, while the latest varieties are beginning to head. The earliest barley varieties also are beginning to head. Most of the spring wheat varieties are entering the "boot" stage.

The rainfall recorded in June was 3.36 inches, while the average for June for 26 years is 3.18 inches. The precipitation was above average in only two months since the beginning of the year. In March it was 0.04 of an inch above the average for the month. Although the total rainfall for the first six months of 1924 was below average it was exceptionally well distributed, making soil and weather conditions almost ideal for winter wheat.

The cleaning of the alleys under the cereal project was finished today.

Prof. Clyde McKee, head of the department of botany at the Montana Agricultural Experiment Station, visited the Substation on June 24 and 25.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (June 30) The weather in June has been favorable for the growth of rice. The stands on the Station are fairly good except for a few late sown plats in the date-of-seeding experiment. The Station rice has passed through the yellow stage and is looking fairly well. However, on most of the land the rice lacks that early vigor which appears to be so essential for high yields.

In the date-of-seeding and depth-of-submergence experiments by continuous submergence after the rice is sown broadcast, the rice looks best for the early dates of seeding, that is, April 25 and May 5. On these series, 100-200, there is considerable water grass owing to the fact that the land was plowed in the winter and considerable grass emerged this spring and was not killed by double disking before the land was sown and submerged. Grass that emerges before the rice is sown and submerged cannot be suffocated by ordinary depths of water.

The rice which was irrigated up before submerging has considerable water grass, as in past years. This method of irrigation is much less effective in the control of grass than continuous submergence immediately after the rice is sown broadcast.

Rice varieties sown on land on which a good stand of Bur clover was turned under this spring looks much better than the same varieties on land which had no Bur clover. The rice on the Bur-clover land has stooled better, has darker green leaves, broader leaves, and has made a much better growth than on land on which no clover was turned under.

On commercial fields in this section the stands and growth of rice is the best I have seen in years, especially on the old lands on which the rice is sown broadcast and continuously submerged.

The water situation in this section is rather serious. In June the Sutter Butte Canal Co. notified the growers who made late applications for water, including about 4,000 acres, that they would be unable to deliver water to them because of shortage. Probably a large part of this acreage will have to be abandoned. However, the growers have received permits to dam and use by means of pumps the available water in drainage ditches, so that part of the acreage may be saved in this way. But there does not appear to be enough water for the land for which early applications for water were made. Most of the growers are asking for more water. Probably additional acreage will have to be abandoned during July and August. This will depend largely on how the water in Feather River holds up as the season advances.

A committee of three members was appointed by the rice growers in this section early in June to confer with officials of the Great Western Power Co. and The Western Canal Co. for the purpose of getting these companies to release more water from Lake Almanor for irrigation purposes. As a result these companies have released considerable water during the past month for use in this section. But the water stored in Lake Almanor is primarily for use in generating electrical power, and the Great Western Power Co. must reserve sufficient water to meet its power contracts later in the year. However, as stated above the power company has released considerable water this month to aid the farmers, and it is hoped that they will be able to release still more in July and August.

The Great Western Power Co. uses steam plants in generating its power, as well as water power. Part of the steam plants have been closed down and more water is being used, and this water in time reaches the farmers. But Lake Almanor, the main storage reservoir of the power companies, is reported to be much lower than in past years, so that naturally the power company may not be able to release enough water to carry the crops to maturity and still retain enough to meet its

contracts for electricity during the fall months. The growers' committee report, however, that the Great Western Power Co. and The Western Canal Co. are doing all that can be expected to help relieve the water shortage in this section.

The Sacramento, Feather, and American rivers are the lowest they have ever been at this time of the year (June), according to the Weather Bureau at Sacramento.

I am afraid that the growers will try to spread the water over so much land that in the end the yields per acre will be low because of competition with water grass. I feel, and have thought at all times, that a systematic reduction in acreage under the conditions would be the best thing to do for all concerned.

Mr. and Mrs. E. L. Adams and Dr. H. V. Harlan visited the Station on June 13, and J. Allen Clark, and T. R. Stanton were here on June 19.

University Farm, Davis (V. H. Florell) (July 1) The threshing of the nursery was completed on June 27 and fairly good yields of grain were produced. In wheat the kernels were plump and well filled but most of the barleys are more or less pinched. On the whole the yields of wheat are more satisfactory than those of the barley. A list of the highest yielding varieties of wheat and barley in the nursery for the season of 1924 is enclosed.

Threshing of the plats was begun on June 28, and that of the barley varieties will be completed today. Yields of barley in the plats are much lover than last year. All threshing should be completed before July 10.

M. A. McCall arrived at Davis this morning. He expects to make a trip to Palo Alto and Berkeley within the next two days and later will visit Biggs and Stockton.

The Sacramento Valley has been favored with very pleasant weather at the harvest and threshing season this year, but during the last few days some very high temperatures have been recorded. On Sunday a temperature of 110° was reached.

Average acre yields in bushels of 20 of the highest yielding wheats out of 65 varieties grown in the nursery in 16-foot rows replicated five times (3-row system of planting used with the middle row only harvested for yield) at University Farm, Davis, Calif., 1924.

	C.I.	Av. yield	
Variety	No.	bushels	Rank
And a state of the			
Hindi M 12	~ -	62.8	1
Canadian Red	6282	57.3	
Defiance (Cal. No. 955)		54.1	3
Defiance	6477	53.3	Ĭį
Oudebaard		53.1	5
Kharkov	1442	52 . 7	6
Baart	1697	52.4	2 3 4 5 6 7 8 9
Galgalos No. 39		51.8	g
Defiance No. 1 M 9		51.4	9
Sonora	3036	50.3	10
Flyproof Wheat	- -	50.3	11
Indian	4489	49.0	12
California No	3222	45.5	
Winter Durum Sel.	33 ¹ +2	. 44.8	13 14 15 16
Dicklow	3663	44.5	15
Propo	1970	43.2	16
Jenkin ,	-	43.0	17
Hard Federation	5177 4733	42.6	18
Linn	6346	42.5	19
	0)40	42.0	20
Preston Sel. (Kans. 634)		46.0	20

Leading commercial varieties included for comparison:

Federation	4734	39.8	2 7
Onas	6221	39.7	28
Bunyip	5125	38.4	3 1
White Federation a/Pacific Bluestem	4981	38.2	33
	4067	32.1	48

_a/

Average of 12 check rows.

Average acre yields in bushels of 14 of the highest yielding barleys out of 57 varieties and selections grown in the nursery in 20-foot rows replicated three times (3-row system), at University Farm, Davis, Calif., in 1924.

Variety	C.I. No.	Av. yield bushels	Rank
Telli Coast Selection Hero Coast Sel. Coast A/ Coast Sel. Mariout (Cal. No. 2241) Coast Sel. Mariout Sel. (Cal. No. 2292) Coast Sel. Mariout Sel. (Cal. No. 2291) Peru Club Mariout Mariout (Cal. No. 2275)	19 ¹ 4 170 B 1286 276 B 690 268 B 100 B 8 ¹ 4 B 707 261	73.5 70.6 70.3 68.4 66.7 66.2 65.8 64.8 63.4 62.3 61.3 60.5 59.0 57.4	1 2 3 4 5 6 7 8 9 10 11 12 13 14
Important varieties included for Smyrna Four Thousand (Cal. No. 4000) Cape x Coast (No. 7) Tennessee Winter	195 257	55.6 44.4 42.7 28.6	19 32 33 54

Average of 13 check rows.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)



CEREAL COURIER

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Personnel (July 11-20) and Field Station (July 1 15) Issue

PERSONNEL ITEMS

J. Allen Clark, agronomist in charge of western wheat investigations, addressed the National Macaroni Manufacturers' Association at its 21st annual convention held July 8 to 10, inclusive, at the Clifton Hotel, Niagara Falls, Ontario. Mr. Clark appeared on the program at the afternoon session on July 8, his address being entitled "Improving the Quality of American-Grown Durum Wheats."

A. C. Dillman, agronomist in charge of flax investigations, arrived at Brookings, S. Dak., on July 10. It is the opinion of State officials that crop prospects in eastern South Dakota are very satisfactory though crops in general are a little later than usual. Mr. Dillman found crops in Ohio and Indiana surprisingly backward, particularly corn, which did not appear to be nearly so promising as that in Minnesota and eastern South Dakota. Many cornfields in Ohio and Indiana had been replanted, so that the crop was in all stages, from recent emergence to a height of 12 or 18 inches. Weeds were extremely numerous because excessive moisture had prevented cultivation.

Crops in the vicinity of Red Wing and St. Paul, Minn., are especially fine. The acreage of flax and wheat mixture in Goodhue County is as large as it was last year. This mixed crop looks especially fine. There was no trace of black stem rust in the several fields examined. The Red Wing Linseed Oil Company supplied farmers with the wilt-resistant N. D. R. No. 114 flax, so that little or no wilt is present.

Mr. Dillman found 12 or 15 fields of flax about 20 miles northeast of Brookings, S. Dak. Early flax was in excellent condition and most fields were early. Later flax was somewhat thin and more weedy than the early sown flax. Flax sown early in May was in full bloom and had many bolls set. The cornfields generally were fair though late. Only one field of wheat was seen and that was durum.

At Watertown, S. Dak,, flax acreage has been considerably increased, practically all having been sown early. Farmers have learned (1) the advantage of early seeding, (2) that flax can be grown successfully on old land, and (3) the necessity for seeding wilt-resistant varieties.

On the way from Watertown to Madison, Minn., many flax fields were found in good condition. Small-grain crops looked well though later than usual. Corn was especially backward. About 10 miles northeast of Redfield, S. Dak., only two fields of flax were seen. These were sown on breaking in June and were only in fair condition. Crops in general looked well. Wheat was needing rain, however. Barley was mature; it was a wonderful crop, having been benefited by heavy rains in June.

No black stem rust was seen in the many wheat fields examined at Red Wing, St. Paul, and Madison, Minn.; Brookings, Watertown, Revillo, and Redfield, S. Dak. Leaf rust was present on winter wheat at the latter place.

Mr. Dillman expected to examine a number of flax fields in the vicinity of Pierre on July 15, and to leave that evening for Newell.

- Dr. G. N. Hoffer, pathologist in charge of the investigation of root, stalk, and ear rots of corn, in cooperation with the Purdue University Agricultural Experiment Station, at La Fayette, Ind., will leave his headquarters July 22 for points in Ohio, Pennsylvania, Connecticut, Rhode Island, Massachusetts, and New York to confer with State and Federal officials, cooperators, and farmers regarding experiments that are being conducted in the breeding of corn resistant to root rot and other diseases, and to make studies on corn growing at agricultural experiment stations and on farms en route. Poctor Hoffer also will come to Washington, D. C., to confer with officials in the Office.
- Dr. H. B. Humphrey, pathologist in charge of cereal disease investigations, left Washington July 14 for a study trip in Indiana, Illinois, Iowa, Kansas, the Dakotas, Minnesota, and Wisconsin. He will examine the cooperative cereal-disease nurseries and make a cereal-disease survey at various points in the States named. Doctor Humphrey expects to return to Washington about August 1.
- C. H. Kyle, agronomist in corn investigations, returned to Washington July 13 At Baton Rouge, La., there had been very little rain in the month of June and the first 10 days of July, so that the early planted corn in the cooperative experiment plats had been considerably injured. The hand pollinations were completed about June 10, but because of the extreme heat and drought it is feared that the results will not be so satisfactory as they were last year.

In contrast with the experience of last year corn has not been much injured by the sugar-cane moth borers, which may retard progress in selecting for resistance to this insect.

In comparison with two standard native varieties, most of the F₁ crosses that are being tested this year for high yield and good shuck protection against insects are giving very satisfactory results.

The corn in the experiment plats at the Tennessee Agricultural Experiment Station, Knoxville, was doing well and hand pollinations will begin in a week or ten days.

T. R. Stanton, agronomist in charge of oat investigations, wrote on July 14, that he had found crops generally better in the Palouse district of northern Idaho than in eastern Washington. While these sections are contiguous, the better farming practices and more diversified agriculture of the former are largely responsible for the better crop conditions. However, the crops had suffered considerably, too, because of the general droughty weather which has prevailed throughout the so-called "Inland Empire."

Some excellent fields of oats were observed on a trip to the mountains out of Moscow. The varieties most commonly grown are Swedish Select, Idamine, and Victory. A plat of Markton on the experiment station at Moscow looked unusually promising. Considerable complaint of bunt in the wheats was heard. Apparently the proper control of this disease is still the big problem throughout this region.

In southern Idaho crops are in fair to good condition. The supply of irrigation water is holding out better than was expected, and as a result excellent crops will be harvested. Prospects are promising for a big yield of clover and alfalfa seed.

In both Nebraska and Iowa wheat and oats although about two weeks late are in excellent condition and high yields generally will be obtained. The cool summer weather has been very favorable to these crops but unfavorable to corn. Most fields are still being cultivated and will not be laid by for a week or ten days. Unless the crop is favored by a warm late fall it probably will be one of the poorest on record. Usually the corn on low spots in fields is the poorest, but this year the reverse seems to be true, as the corn on knolls in most fields is decidedly shorter than in the lower surrounding areas and can be observed from long distances. The harvesting of the early varieties of wheat on the Agronomy Farm was begun today.

The following members of the Office staff have been authorized to attend the Eighth Annual Conference of Western Agronomists, to be held at Laramie, Wyo., July 21 to 23, inclusive: F. A. Coffman, agronomist in oat investigations; J. H. Martin, agronomist in western wheat investigations; M. A. McCall, agronomist in administration of agronomic division; R. W. Smith, in charge of cooperative cereal experiments at the Dickinson Substation, Dickinson, N. Dak.; G. F. Sprague, in charge of cooperative cereal experiments at the North Platte Substation, North Platte, Nebr.; and A. F. Swanson, in charge of cooperative cereal experiments at Hays Branch Experiment Station, Hays, Kans.

MANUSCRIPTS AND PUBLICATIONS

A paper, entitled "Improving the Quality of American-Grown Durum Wheats," by J. Allen Clark, was approved July 8 for publication in The Macaroni Journal.

A manuscript, entitled "Observations on the Time of Blooming of Rice Flowers," by <u>Jenkin W. Jones</u>, was approved July 18 for publication in the Journal of the American Society of Agronomy.

A manuscript, entitled "A Study of Variability in the Burt Oat," by Franklin A. Coffman, John H. Parker, and Karl S. Quisenberry, was submitted July 17 for publication in the Journal of Agricultural Research.

Galley proof of article, entitled "The Inheritance of Pubescent Nodes in a Cross between Two Varieties of Wheat," by H. H. Love and W. T. Craig, for publication in the Journal of Agricultural Research, was read July 12.

Galley proof of article; entitled "The Resistance of Oat Varieties to Stem Rust," by William W. Mackie and Ruth F. Allen, was read July 19.

Second page proof of Department Circular 324, entitled "Markton, an Oat Variety Immune from Covered Smut," by <u>T. R. Stanton</u>, <u>D. E. Stephens</u>, and <u>E. F. Gaines</u>, was read July 18.

The article, entitled "Wheat Scab and Corn Rootrot Caused by Gibberella saubinetii in Relation to Crop Successions," by Benjamin Koehler, J. G. Dickson, and J. R. Holbert, appears in the Journal of Agricultural Research, v. 27, no. 11, p. 861-879, 2 pl. March 15, 1924. (Number received July 19, 1924).

Errata

In the table in connection with the report on the winter survival of wheat varieties in the Uniform Winter Hardiness Nursery, on page 93 of the Cereal Courier, v. 16, no. 11 (May 31, 1924), an error was made in reporting Quebec City, as the location of the tests made in eastern Canada. As a matter of fact, these tests were made at Macdonald College, Quebec Province, near Ste. Anne de Bellevie, a short distance southwest of Montreal.

SPECIAL MEMORANDA

IMPORTANT NOTICE

Occupational Disease Amendment to Employees! Compensation Law.

By an amendment to the Employees' Compensation Act, approved by the President June 6, 1924, it is provided that compensation shall be paid for occupational diseases, or in the language of the amendment "any disease proximately caused by the employment." This action makes clear, beyond question, the intent of Congress to provide compensation and medical and hospital care for occupational diseases as well as for the results of accidental injuries sustained while in the performance of duty.

This application of the law to cover occupational diseases is not new, having been followed by the Compensation Commission for six years until interrupted because of a decision of the Comptroller General construing the law as applicable to injuries by accident only and refusing approval of payments on account of occupational diseases.

It should be clearly understood that the law as construed heretofore and as now amended does not permit the payment of money compensation or the furnishing of medical care for any disease unless the result of an accident or unless its direct causal relationship to the employment is shown. The mere fact that disease develops after the employee enters Government service cannot be accepted as sufficient basis for an award of compensation. The common diseases such as colds, pneumonia, tuberculosis, typhoid fever, rheumatism and the like, which may be and usually are due to causes entirely outside the employment, can very rarely and only under most unusual conditions be the basis of an award under the Compensation Law.

Because of the requirement of the law that claim must be made within a year, and because of the difficulty of establishing the facts after a lapse of time, injured employees should give notice of injury to the official superior without delay and should make claim to the Commission. The official superior also should make prompt report of all the facts to the Commission after such investigation as is necessary and practicable to verify or test the claims of the employee. The official superior should not authorize in behalf of the Compensation Commission any medical care except in accordance with the Regulations of the Commission.

U. S. EMPLOYEES' COMPENSATION COMMISSION,

Bessie P. Brueggeman
(Mrs.) Bessie P. Brueggeman,
Chairman.

June 9, 1924.
Washington, D. C.

B. P. I. Memo. 87.

July 14, 1924.

MEMORANDUM FOR HEADS OF OFFICES.

Gentlemen:

The following memorandum has been received from Mr. P. D. Kelleter, Director of Purchases and Sales:

"It is to the advantage of the Department that all purchases of furniture, filing cases, etc., be made on the basis of the federal furniture specifications adopted by the General Supply Committee.

"The purchase of furniture for use in Washington is controlled by the provisions of the General Supply Committee, and the furniture delivered conforms to these specifications. However, it has come to my attention that purchases of furniture for field use have been in many instances for equipment not conforming to the federal specifications. The disadvantage is that such purchases are for commercial grades which are inferior to the grades furnished under the federal specifications, and for sectional units equipment which will not intermingle with equipment from other manufacturers.

"In order that the Department furniture purchases may be put on a good basis without further delay, it is requested that all purchases of furniture be made from the General Schedule of Supplies. It has been demonstrated that the prices are advantageous to the Department.

"No furniture purchase not in conformity with the above should be consummated without reference to the Director of Purchases and Sales."

Will you kindly see that this memorandum comes to the attention of the employees of your field service who may have occasion to make purchases of furniture, filing cases, etc.

Very sincerely,

WM. A. TAYLOR,
Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (No report)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (July 15) The rainfall in June was only 1.75 inches, which is the lowest quantity of precipitation recorded for the 15 years that records have been kept. The lowest previously recorded for June was 1.93 inches in 1916. The 14-year average for the month of June is 4.73 inches.

The supply of irrigation water in the streams was increased somewhat by heavy rains north of Crowley early in the month, but the increase was not sufficient to supply the canals for more than a few days. The irrigation water in the bayous has become too salty, and most of the canal companies in this vicinity have been compelled to cease operations. In the main the fields were well irrigated when pumping was discontinued; however, if the weather continues dry additional water will be needed within a short time.

Water is getting very low in the deep wells, and in many cases does not rise above the pump. In some of the old wells, in which the pumps are only 30 feet below the surface, the water level has fallen so low that it is impossible to prime the pump. This is true of the well on the Station. It has been necessary to prime the pump since the first of July. The plats on the Station are all submerged; however, if there is not a change for the better many plats will be dry within the next week. The canal from which we could obtain water has only salt water to offer and it, too, has closed down.

In spite of the excessively dry weather soybeans are growing nicely; however, some late seedings, made after oats, are not up to a stand. The light shower of rain on the 9th inst. (0.95 of an inch) was of great benefit to these as well as those that have been up for some time.

E. S. Landry, rice specialist, Extension Division of the Louisiana State University, has just completed a two-day inspection trip among the soybean demonstration fields in parts of Acadia Parish. He states that the unusually dry weather has prevented many farmers from seeding beans and, in some cases, has reduced the stand. On the other hand, the dry weather has enabled demonstrators to cultivate frequently, thus keeping the weeds under control. Mr. Landry reports 450 acres in very good condition in the territory visited during the two days.

In the past month anthrax has been destroying large numbers of cattle and work stock, largely because of the failure of farmers to vaccinate. The Louisiana Agricultural Experiment Station is now in its sixteenth year, and during this time not one animal has had anthrax, in spite of the fact that animals have died in large numbers just across the roads to the north and west. This is attributed to good care of the animals and to vaccine which has been used every year.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jerkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Parberry Eradication, M. A. Smith) (No report)

ILLINOIS

Funk Bros. Seed Company, Blockington (Corn Root and Stalk Rot Investigations J. R. Holbert) (No report)

Post Office Building, Urbana (Barbarry Eradication, G. C. Curran) (July 3) A survey for stem rust on barberry bashes, grains, and grasses was made in June in all parts of Illinois. This survey was conducted in cooperation with the Illinois Natural History Survey. Very little stem rust was found on grains and grasses in the southern part of the State. In all cases the infection was extremely light and was found only after a thorough search of several fields. Rust on barberries has been quite general over the northern half of the State. Rusted barberries were located in Christian County near Pana. There was no evidence in June that the rust was spreading to grasses and grains from this hedge. A number of barberry bushes were excained in southern Illinois but no other infections were found. A large proportion of the barberries examined this year in the northern half of the State were found to be rusted. In several instances quack grass growing near these bushes was found to be severely rusted. In all probability observations in July will show a number of other places where these infected barberries will have spread rust to nearby grasses and grains. According to present indications however, black stem rust will not materially reduce the yield of small grains in Illinois this year.

Putnam County and a part of Kane County were resurveyed in June. Satisfactory progress was made, a number of bushes having been destroyed by the use of considerable quantities of salt.

On June 16 the survey of Cook County was continued. Six men made a foot survey of Hyde Park and residential sections of Chicago. Not many barberry bushes were found. Progress in Chicago is slow, but before the season is ended most of the city will have been covered.

The annual conference and the school of instruction of field men were held at Urbana from June 28 to July 1. The first day was devoted to a detailed study of the life cycle of black stem rust. Each man was provided with a microscope, and drawings of the different spore forms were made. The men were taught how to distinguish leaf rust from stem rust. L. R. Tehon, of the Illinois Natural History Survey, gave a talk on cereal diseases. Crown rust of oats was studied, and the field assistants were urged to report all plantings of buckthorn to S. M. Dietz, in charge of cooperative investigations of crown rusts of oats at Ames, Ia. During the conference addresses were made by Dean H. W. Mumford, of the College of Agriculture, P. A. Glenn of the State Department of Agriculture, and Dr. F. L. Stevens of the Botany Department. Messrs. Griffin, Fobes, and Stark, who were on the barberry eradication force last year, and Miss Mary T. Hopkins also gave talks and assisted in instructing the new men.

Most of the field men were taken to Lacon in Marshall County and on July 2 treated a large area of escaped barberry bushes with salt. They were then assigned to their respective counties to continue the regular survey.

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (July 16) An original survey was made of Ashland County and the city of Akron during the last two weeks of June. Noel F. Thompson, pathologist in charge of the chemical eradication of common barberry, with headquarters at Madison, Wis., spent a few days in Ohio in the latter part of the month studying the results of applications of kerosene to barberry bushes.

On July 1 our entire force of 35 Federal and State field assistants assembled at Ravenna, Portage County. From there they went by automobile to the north-eastern part of the county where an area of escaped barber les among the hills near Nelson was treated with salt provided by the Ohio State Department of Agriculture. The new field men were made familiar with some of the problems that confront eradicators of barberry bushes. Upon the return to Ravenna plans for the summer's campaign were discussed. On the following day the force was divided into squads, each squad proceeding to the county to which it had been assigned.

Howard W. Johnson has been placed in charge of all resurvey. He has begun by checking old barberry locations for sprouts and seedlings in a block of 12 counties in the southwestern part of the State, assigning to this operation the members of his squad who have worked in those counties on criginal survey in previous years.

The original survey is in progress in Ashland, Cuyahoga, Holmes, Coshocton, Muskingum, Pike, and Brown counties. The recent excessive rains have made many roads almost impassable, especially in the hilly country. Five areas consisting of from 15 to 400 escaped barberry bushes have been found recently in Ashland, Holmes, and Coshocton counties.

From July 14 to 16, inclusive, Dr. F. E. Kempton, pathologist in charge of barberry eradication, and the writer inspected wheat fields and areas of escaped barberries in Portage, Lorain, and Ashland counties.

Rust appeared on barberries this year about three weeks later than usual. However, in many parts of the State barberries had become quite generally rusted in May and June; in some places the rust was heavier than usual and in others lighter. No stem rust was found on wheat near infected barberries in northwestern Fairfield County on June 23. The writer noted stem rust first on July 4 near London, Madison County; only a few uredinea were found on a few culms. On the following day several wheat fields were examined in Delaware, Knox, Richland, Ashland, Lorain, and Cuyahoga counties. A trace of stem rust was found in the northern parts of Delaware and Knox counties; no stem rust on wheat was seen in the other counties. Since July 5 wheat fields have been examined in Portage, Summit, Cuyahoga, Holmes, Butler, Lorain, and Ashland counties, but only a trace of stem rust was found in each county. No stem rust was seen on July 15 on wheat near infected barberries at Brownhelm and Wellington in Lorain County, or near infected barberries at Cavallo in Coshocton County. Four cases of severe local stem-rust epidemics have been reported to date from northeastern Preble, eastern Montgomery, central Pike, and southwestern Coshocton counties. In each case it was evident that the rust was most severe near infected common barberries. From present indications it seems probable that the total wheat yield in Ohio this year will be reduced only slightly by black stem rust.

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (June report) The barberry eradication campaign in Minnesota is now going ahead with full force. The second survey is being conducted in Grant, Douglas, Stevens, Pope, Lac Qui Parle, Chippewa, Kandiyohi and Renville counties. Close observations on spread of stem rust are being made wherever common barberry bushes are found. Over 200 fields of wheat, barley, rye, and oats are under observation for first appearance of stem rust. About 175 of these fields are in the two tiers of counties adjoining North Dakota and South Dakota. Each of these fields is being inspected every three to five days. By this method we hope to be able to locate some bushes previously overlooked. A few scattered pustules of stem rust have been found. In the southeastern part of the State a combined resurvey and stem-rust patrol of grain fields are being conducted. Conditions are ideal for local infections. Stem rust has been found on all the small grains and on several wild grasses near barberry. One pustule was found on Marquis wheat as far north as Audubon, Becker County, on July 7.

Investigation and more detailed survey of the Pine Island district are disclosing new findings of escaped bushes. One of the largest bushes found in this area was located last week. Winter wheat in the vicinity was rusted (July 2). This was the first rust on wheat near barberry found in Minnesota this year.

County fairs are starting. Demonstrations are being placed wherever possible. Window displays including actual bushes are being used in all counties in which survey is being conducted. Samples of barberries are being placed in every grain elevator and bank.

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (July 16) The weather of the first half of July was favorable for row crops. Progress has been made with the threshing of wheat.

The sorghums in the July 1 date-of-seeding plats emerged to a stand by July 7. On July 15 date-of-seeding plats of feterita, dwarf feterita, early white milo, and Sudan grass were seeded.

With the exception of the July 1 and 15 date-of-seeding plats, all the sorghums and broomcorn plants in the cereal project have been thinned. Work has been started on lining up the roadways.

Maximum temperature for first half of July, 98° on the 15th; minimum, 53° on the 3rd. Precipitation for July to date, 2.32 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (July 8) The harvest of the hard winter-wheat mursery was completed on June 27. That of the much smaller barley nursery was finished on June 28, and practically all of the rod rows and head rows in the rather large oat nursery were harvested by July 3. Threshing of the winter-wheat nursery material will begin on July 9. A plat of Kanred wheat, grown on alfalfa ground at the agronomy farm, yielded 52 bushels per acre.

The extension force and members of the agronomy department are cooperating in running a "Soil Improvement and Legume Special" through some of the southeastern counties this week. Messrs. E. B. Wells, H. R. Sumner, and L. E. Willoughby, of the extension staff, and Prof. L. E. Call and Dean Farrell will be with the truck part or all of the time. Stops will be made at each of the five new outlying experimental fields as well as at other points.

Dr. H. V. Harlan, accompanied by Prof. S. C. Salmen, spent June 23 at the Colby station and June 24 at Hays, accompanied by the writer and F. D. Ruppert. On June 25 and 26 Doctor Harlan gave an illustrated talk at Manhattan on his experiences in Abyssinia.

The writer spent June 22 in Barton County, Kans., investigating the rather serious and widespread occurrence of Aegilops as a weed in wheat fields.

- F. D. Ruppert returned to Manhattan from Hays and acc mpanied the writer to Mankato and Colby on July 3 and 4, where notes were taken on the wheat and barley nurseries. Mr. Ruppert remained at the Colby station to assist Superintendent Barnes in caring for the barley nursery and will proceed to Hays about July 10 to assist A. F. Swanson in threshing the Hays barley nursery.
- E. C. Parker, associate marketing specialist in the Hay Division of the Bureau of Agricultural Economics, was at the Station from July 4 to 7.

June Weather at Manhattan

Maximum temperature, 101° on June 18 and 24; minimum, 46° on June 30; total rainfall, 3.20 inches.

Weather and Crop Conditions in Kansas for June, 1924.

The weather in June was fine for crops in the eastern third of Kansas, but over the western half it was one of the driest months of June on record. In the western two-thirds of the state, May and June combined broke all records for dry weather at this time of the year. Temperatures of 100 degrees or higher were recorded in almost every western county, with an extreme of 103 degrees at several points on the 12th, 18th, and 24th. The lowest temperature reported in the State was 36 degrees on June 1 at Atwood and Lakin. Corn made excellent growth in the eastern third of the State and in most of the central counties but was retarded in the western counties by lack of moisture in the soil. Wheat harvest began before the middle of the month in the south-central counties, a few days earlier than usual. As the month closed, it was nearly finished in that section and was

beginning in the eastern third to the Nebraska line and well under way in the central counties. Harvest began about July 1 in the north-central counties and about July 7 in the northwestern counties. Grain sorghums are making a fairly good start but are needing rain generally.

(July 17)

Threshing of the winter-wheat nursery was completed on July 16 and threshing of the oats and barley nurseries was begun on July 17.

- F. D. Ruppert returned to Manhattan July 17, having completed the work in the barley nurseries at Colby and Hays.
- Dr. R. A. Emerson, of Cornell University, visited the Station on July 11 and 12.
- M. A. McCall, of the Office of Cereal Investigations, was a visitor on July 14 to 16.

Weather Conditions for Manhattan

Maximum temperature, 94° on July 8; minimum, 45° on July 3; total rainfall for first 15 days, 1.56 inches.

Weather and Crop Conditions in Kansas

In the first week of July right temperatures in the 40's were common and readings generally failed to reach 80° in the afternoon. There was no rain except as local showers. Corn was making satisfactory growth in the eastern and central counties but was in need of rain. Generally fair weather with temperatures about normal prevailed throughout the week ending July 15. Two satisfactory rainfalls were recorded for all of Kansas, with the exception of the extreme western part. Very heavy rains occurred in the southeast quarter of the State. the total rainfall for the week at Fort Scott being 8.42 inches. The western third of the State was still in the grip of the drought and cultivated crops are in a critical condition. Wheat harvest was practically finished in the eastern two-thirds of the State and threshing reports indicate that the wheat is of excellent quality. Yields are running higher than pre-harvest estimates and it is likely that the total production will be in the neighborhood of 140,000,000 bushels. This splendid crop at the higher prices which now prevail will add materially in improving general agricultural and business conditions in the State. Condition of corn in the eastern half of Kansas was greatly improved by the recent rains. The condition of the corn crop in the western part, which has not had a good rain for several months, is very poor.

Hays Branch Experiment Station, Hays (A. F. Swanson) (No report)

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (No report)

NEBRASKA

North Platte Sub tation, North Platte (George F. Sprague) (July 15)

J. Allen Clark and T. R. Stanton, of the Office of Cereal Investigations, have been visitors at the Substation, inspecting the cereal experiments.

Winter wheat, oats, and barley are nearly harvested. Spring wheat will not be ready to cut for a week or ten days.

The weather has been rather favorable for harvest. A total precipitation of 1.27 inches has been recorded for the first two weeks in July. The maximum temperature was 93° on July 12; minimum, 46° on July 3.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

SOUTH DAKOTA

College of Agriculture, Brockings (Barberry Eradication, R. O. Bulger) (No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel) (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (Victor V. Sturlaugson, for Ralph W. Smith) (July 15) We have had sufficient rainfall in the first half of July to insure rapid growth of all crops, the total precipitation being 1.53 inches. Warm weather also prevailed during this period.

All the grain, both in the plats and nursery, looks fine at present. First heading has been recorded on all the cereal plats, and full heading on a few of the earlier varieties of oats, wheat, and barley. First heading also has been recorded on most of the nursery. The headrows are just beginning to head. All the flax varieties have begun to flower and some are fully flowered, including the first two seedings of the date-of-seeding-and tillage experiment. Although the corn is late it has been making very rapid growth during the last two weeks.

About 100 crosses have been made between Dakold winter rye and several different varieties of winter wheat, also between Kota and several other kinds of wheat.

We are glad to report that no signs of rust have been discovered as yet.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (July 16) There has been exceptionally good growing weather during the first half of July. The days have been generally warm but not hot and the winds of moderate velocity.

A precipitation of only 0.10 of an inch, recorded for July 7, was the only one recorded during this period. On account of the abundant precipitation in June, crops have not yet suffered greatly from lack of moisture but are beginning to show signs of drought injury.

If the hot, dry weather continues much longer the crop yields are likely to be reduced considerably below the recent estimates.

Corn is now recovering from the effects of the cool, cloudy weather in June and is making good growth.

All varieties of wheat, oats, and barley in the varietal plats have been recorded as fully headed, though about ten days later than in 1923.

A careful search has shown no trace of stem rust so far.

Flax wilt has developed rapidly in the flax-sick soil plantings during the last few days. Rows of susceptible varieties are rapidly succumbing.

Maximum temperature for the period was 91° on July 10 and 15; minimum, 46° on July 12.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (July 15) The major field operations performed on the cereal project since the last report are the cultivation of the nursery rows, eradication of weeds from the plats, and hoeing weeds and alfalfa from the corn. The taking of notes on the cereals in the nursery rows and in the plats required nearly one-fourth of my time during this period. Plowing for summer fallow also was completed early in this period.

Other operations which should be performed immediately are weeding the flax plats and nursery rows, thinning the stand of corn in each of the corn experiments, rogueing mixtures from all of the plats and nursery rows, and cleaning roadways of volunteer grains. Each of these operations is rather large and will require more time than I have available. It will be necessary to neglect the increase plats of grain altogether. The crew of farm laborers are now putting up hay.

The earliest varieties of winter wheat are beginning to turn brown. All of the spring-grain varieties, with the exception of a few of the latest, are in full head. All grains are beginning to show the effect of lack of moisture.

The precipitation in the first two weeks of July was only 0.57 of an inch, while the average for the whole month is 1.97 inches.

J. M. Stephens, Superintendent of the Northern Great Plains Field Station, Mandan, N. Dak., visited the Substation from July 12 to 15. The fifteenth annual Farmers' Picnic will be held at the Substation July 24.

State College of Agriculture, Bozeman (Barberry Eradication, W. N.Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (No report)

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

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Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR PUBLICATION)

CEREAL COURIER

Vol. 16

July 31, 1924
Personnel (July 21-31) and Project Issue

No. 17

PERSONNEL ITEMS

J. Allen Clark, agronomist in charge of western wheat investigations, wrote on July 14 that the first stem rust was found at Fargo on July 9 but that it was hard to find either stem or leaf rust. Weather conditions were ideal for wheat, most of which had been headed for a week at the time of writing. Both wheat and rust were ten days later than they were a year ago. The prospects for a fine crop were better than they had been for several years. A number of the new hybrid wheats looked especially premising. A Fargo newspaper of July 13 reported that rust was general in eastern South Dakots. On July 22 Mr. Clark telegraphed that rust was fast becoming general ever North Dakota. He arrived at the Northern Great Plains Field Station on July 28 and found that while there was no serious injury from rust some rust was present on all susceptible varieties of wheat. Crops along the route from Fargo looked promising and the harvest of early sown wheat was expected to start the last week in July, while the general harvest would be about ten days later. At Mandan there probably will be a reduction in the yields by reason of the drought in spite of the heavy spring precipitation.

A. C. Dillman, agronomist in charge of flax investigations, arrived at Pierre, S. Dak., on July 15 and found a considerable acreage of flax, much of it on new breaking. A few fields seeded about the first of May on old land were in good condition, the plants being pretty well bolled though still in bloom. The prospect for the later sown flax on breaking was more uncertain. There was some loss from wilt on two fields where flax had been grown previously. Pasmo also was found in one field. The diseased plants were quite widely distributed in the field though none was very extensively blotched. Specimens of the diseased plants were sent for identification to W. E. Brentzel, assistant pathologist in the cooperative coreal-disease investigations at Fargo, N. Dak.

At the Belle Fourche Experiment Farm, Newell, Mr. Dillman found that the dry-land crops were suffering from drought; the yields probably will be fair in spite of the scanty rainfall during the growing season. It is estimated that winter wheat will yield 20 or 25 bushels to the acre. Harvest was in progress on July 17. The irrigated crops were in excellent condition. Quite extensive varietal tests of wheat, oats, barley, and flax have been continued. The flax was sown on fertile land, which was cropped to potatoes last year. It gives promise of yielding 16 or 18 bushels to the acre. No pasmo was found though it may appear later.

Crops at the Northern Great Flains Field Station, Mandan, N. Dak., were found in very good condition for the most part, although the yields in many plants may be reduced as a result of the drought. Some plats had begun to dry up the week before, but light rains, totaling 1.50 inches, were of temporary benefit. The first trace of stem rust was found July 21 on several varieties in the plats, and on Marquis wheat in several fields near the Station. Early wheat probably will be ripe by the first week in August; hence it is not likely that rust will do much injury.

Mrs. Elsa Dorsey, of the District of Columbia, who has been employed as typistunder a temporary appointment since October 26, 1923, resigned at the termination of July 25.

Dr. H. B. Humphrey, pathologist in charge of cereal-disease investigations, writes from Doland, S. Dak., on July 25, that, with a party consisting of Dr. E. C. Stakman, Donald G. Fletcher, Mr. Hynes, an Australian graduate student at the University of Minnesota, L. W. Melander, and E. B. Lambert, he made an automobile trip from Minneapolis to Fargo, N. Dak., arriving there July 23. Every few miles grain fields were examined and but little stem rust was found. The members of the party made individual notes in different parts of each field and then compared notes. Briefly, the following points were agreed upon: (1) The initial inoculum must have been very meager and therefore but thinly scattered and at widely spaced intervals; (2) the initial infections were few to a given area and apparently dated back to about June 20 to 25; (3) with the exception of about four days of hot, humid weather the growing period for cereals throughout the area visited had been cool and relatively dry; (4) during the few days of rust-favoring weather secondary infection became manifest in scattered uredinia; (5) by the time this secondary infection appeared practically every field of Marquis wheat inspected was in either the soft dough or hard dough stage and really out of danger; (6) barberries, where found, were unmistakably responsible for tributary local infection of grains and grasses; (7) throughout most of the territory visited the barbeary field men had found only comparatively few barberries and these were but lightly infected; (8) the greater part of the initial infections arose from spores carried in from other States, not necessarily from the South, and precipitated in June by showers during "low-pressure" periods. This initial incculum may have come from States as far away as Wisconsin or even from Michigan and Illinois.

Doctor Humphrey found that Helminthosporium rootrot, while present in nearly every field of wheat, had caused little appreciable injury except in certain fields of durum on the route between Doland and Redfield, S. Dak. Wheat in Spink County, S. Dak., was then being harvested and had escaped injury from stem rust. Fields of Marquis wheat probably will yield all the way from 15 to 35 or 40 bushels to the acre. Oats were being harvested, as were also the most advanced fields of barley. Corn locked more promising than in Indiana. It was mostly waist-high and some of it was tasseling. Crops throughout the territory visited looked more promising than they had at any time since 1915.

Dr. F. E. Kempton, pathologist in charge of barberry eradication, wrote from Lansing, Mich., on July 23 that he had found no rust in fields in southern Michigan. In an area near Concord, Jackson County, that had been cleared of barberries, no rust was found. Wheat in this vicinity was being cut.

On July 12 in the vicinity of Shippensburg, Pa., most of the wheat was just ready to cut; a few fields were in the shock. Fields near the barberry bush west of the city of Shippensburg were very badly rusted; in fact, this was the worst rust seen so far.

In Ohio, on July 13 and 14, Doctor Kempton found that fields even near barberries were not severely rusted; however, he examined only those in the neighborhood of the larger lushes that had been treated early. Wheat was being cut near Ravenna but not near Cleveland. On July 15 wheat was being cut near Ashland, and on the following day near Columbus wheat was seen in the shock. The use of kerosene in destroying barberry bushes in Ohio seems to be successful.

On July 17, near Richmond, Ind., wheat had been cut for at least a week. In the vicinity of Alert, Decatur County, on July 20, Doctor Kempton found that wheat from a field that had formerly been badly rusted had already been threshed; the straw did not show even a trace of rust. No sprouts could be found where the one large barberry bush had been eradicated. This area seems entirely free from stem rust. On the following day an area of escaped barberries was found on limestone hillsides near the city of Madison, Jefferson County. The bushes were badly infected, and the rust had spread to orchard grass, redtop, and Canadian blue grass. There was no wheat near by. Barberry bushes are being eradicated with salt or by digging as seems advisable. At Aurora, in Dearborn County, an area of escaped barberries was found on hillsides near the city. Bushes had been salted and were dying. Rust on rye was nearly 1 to 5 per cent; there was no wheat near by. No rust was found in fields from Richmond northward to Lagrange, with the exception of a trace in a field west of Kendallville, Noble County, and in fields near an area of escapes near Wolcottville, in Lagrange County. This area has been almost cleared of barberry bushes. Farmers in the vicinity are very much pleased that there is only a small amount of rust. Wheat was just ready to cut.

- A. F. Swanson, assistent agronomist in charge of the cereal experiments at the Hays Branch Experiment Station, Hays, Kans., returned to his headquarters July 27 after attending the Eighth Annual Conference of Western Agronomists at Laramie, Wyo., where he presented a paper on the Relation of Temperature and Rainfall to Date and Rate of Seeding Winter Wheat. Mr. Swanson also visited the Cheyenne Experiment Farm at Archer, Wyo., the Colorado Agricultural Experiment Station at Fort Collins, where he found the barley experiments of much interest, the Akron Field Station at Akron, Colo., and the Cheyenne Wells (Colorado) Substation.
- Dr. W. H. Tisdale, pathologist in charge of smut investigations, returned to Washington after a month's trip in the Middle West. At Leavenworth, Kans., he joined Prof. L. E. Melchers in an inspection of wheat fields for flag smut. The disease was found in fields where it occurred last year but not in fields where it was absent last year. The percentages were not so high in some cases as last year. At Columbia, Mo., Doctor Tisdale inspected the cereal-smut experiments and discussed smut problems with botanists and agronomists. At Granite City, Ill., he harvested the wheats from the flag-smut experimental plats. At Urbana he discussed future plans for flag-smut experiments with the Station director and the plant pathologist and conferred with P. A. Glenn, Chief Inspector of the State Department of Agriculture, concerning a flag-smut survey. Mr. Glenn stated that flag smut was found in only one locality outside of the area quarantined last year. That particular locality was about 30 miles from the present quarantine line in Washington County. Mr. Glenn also said that about 450 acres of the flag-smut resistant wheats will be harvested in Illinois this year. In some localities they were badly winterkilled but not more so than the wheats which are grown generally in that part of the State. Farmers seem to be well pleased with these varieties, namely, Shepherd, Trumbull, and Gladden.

From Urbana Doctor Tisdale went to Madison, Wis., where he conferred with Station and Federal pathologists concerning the possibility of future cooperative cereal-smut experiments, and inspected their cereal experiments.

VISITORS

Dr. F. L. Engledow, senior assistant to Dr. R. H. Biffen, of the Plant Breeding Institute, of the School of Agriculture of Cambridge, England, recently spent two or three days with agronomists and others of the Office staff. He left Washington July 27 for Chicago, Ill., to study systems of grading and transporting wheat; he also expected to visit the University Farm at St. Paul, Minn., to study methods of cereal breeding.

Doctor Engledow has made quite a few genetic studies of barley and wheat, and, while in Mesopotamia with the British Army during the World War, he made some important collections of cereals.

Doctor Engledow will go to Toronto, Canada, where the 92d annual meeting of the British Association for the Advancement of Science will be held from August 6 to 13. He expects to return to England the latter part of August.

MANUSCRIPTS AND PUBLICATIONS

Galley proof of article, entitled "An Ascigerous Stage and Synonomy : for <u>Fusarium moniliforme</u>," by <u>Grace O. Wineland</u>, was read July 24.

Page proof of article, entitled "Investigations on the Nematode Disease of Cereals Caused by <u>Tylenchus tritici</u>," by <u>R. W. Leukel</u>, for publication in the Journal of Agricultural Research, was read July 28.

The address, entitled "Improving the Quality of American-Grown Durum Wheat," presented by <u>J. Allen Clark</u>, on July 8 before the 1924 conference of the National Macaroni Manufacturers' Association at Niagara Falls, Ontario, has been published in The Macaroni Journal, v. 6, no. 3, p. 21-23. July 15, 1924.

The brief paper, entitled "Albinism in Barley," by <u>G. A. Wiebe</u>, has been published in The Journal of Heredity, v. 15, no. 5, p. 221-222, fig. 18.

May, 1924. (The number was received July 31, 1924)

IMPORTANT

Washington, D. C.,

B.P.I. Memo. 89.

July 30, 1924.

MEMORANDUM FOR HEADS OF OFFICES.

Gentlemen:

Please note the following communication from the Secretary emphasizing the importance of assisting in fire-fighting activities in the West so long as the present extraordinary conditions of fire hazard continue. Of course it goes without saying that Plant Industry men in that region will cooperate promptly and whole-heartedly with the National Forest officers in combatting forest fires:

"In view of the extraordinary conditions of fire hazard existing on the National Forests in the West, it is of the utmost importance that Government agencies unite to the greatest possible extent in measures for the suppression of fire on or threatening the National Forests. Despite all precautions fires often start from natural and other unavoidable causes such as lightning storms, and must be vigorously attacked with every human resource available.

"In this situation it is necessary that the bureaus of the Department which have parties working in the field issue instructions to such parties that prompt response be made to calls for assistance which the National Forest District officers may make in emergencies. It is most essential that fires discovered by members of field parties be reported to the nearest known Forest officer immediately. In the cases of such cooperation all expenses of labor and supplies will be borne by the Forest Service, salaries of permanent employees excepted, the labor being paid for at the current fire-fighting rates. It is understood that members of working crews so called into action will be released as soon as the danger period is passed or other suitable fire-fighting forces are available. It is understood also that calls of this kind will not be made by the National Forest officers except in cases of absolute emergency.

(Signed) Henry C. Wallace, Secretary."

Yours very truly,

(Signed) Wm. A. Taylor, Chief of Bureau.

SEMIANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS,

JANUARY 1, 1924, TO JUNE 30, 1924

The following 39 papers, resulting from the work of the Office of Cereal Investigations, were published during the first half of the calendar year 1924, in the various series of Departmental publications, in the bulletin series of the cooperating State agricultural experiment stations, and in private journals. The five marked with an asterisk were submitted during the period from January 1 to June 30, 1924.

AGRONOMIC SUBJECTS

Corn

Effects of Selection on the Yield of a Cross between Varieties of Corn, by Frederick D. Richey. U. S. Dept. Agr. Bul. 1209, 19 p., 2 fig. February, 1924.

Adjusting Yields to their Regression on a Moving Average, as a Means of Correcting for Soil Heterogeneity, by <u>Frederick D. Richey</u>. <u>In</u> Jour. Agr. Research, 27:79-90, 2 graphs. January 12, 1924.

Defective Seeds in Maizes-An Ancient Character, by Frederick D. Richey. In Jour. Hered., 14:359-360, fig. 12. November, 1923. (Received January 2, 1924.)

Wheat

Milling and Baking Experiments with American Wheat Varieties, by J. H. Shollen-berger and J. Allen Clark. U. S. Dept. Agr. Bul. 1183, 92 p., 5 pl., 23 fig. February 7, 1924. (In cooperation with Milling Investigations, Grain Division, Bureau of Agricultural Economics.)

The Blooming of Wheat Flowers, by <u>C. E. Leighty</u> and <u>W. J. Sando</u>. <u>In Jour. Agr. Research</u>, 27:231-244, 2 fig. February 2, 1924.

*Development of Wheat Plants from Seminal Roots, by <u>Lowell F. Locke</u> and <u>J. Allen Clark</u>. <u>In</u> Jour. Amer. Soc. Agron., 16:261-268, 4 fig. April, 1924. (In cooperation with Office of Dry Land Agriculture Investigations, Bureau of Plant Industry.)

U. S. Dept. Agr. Circ. 305, 7 p., 1 fig. February, 1924.

*Supernumerary Spikelets in Mindum Wheat, by <u>F. A. Coffman</u>. <u>In Jour. Hered.</u>, 15:187-192, fig. 30-33. April, 1924.

Oats

Spring Oat Production, by <u>C. W. Warburton</u>. U. S. Dept. Agr., Farmers' Bul. 892, 22 p., 9 fig. (Issued November, 1917; revised June, 1923. Received from Government Printing Office January 4, 1924.)

Rice

Results of Rice Experiments at Cortena, 1923, and Progress in Experiments in Water Grass Control at the Biggs Rice Field Station, California, 1922-23, by Carroll F. Dunshee and Jenkin W. Jones. Calif. Agr. Exp. Sta. Bul. 375, 38 p., 6 fig. February, 1924. (The investigations conducted at the Biggs Rice Field Station are planned, financed, and directed by the Office of Cereal Investigations of the Bureau of Plant Industry, U. S. Department of Agriculture, and are conducted by Jenkin W. Jones, agronomist.)

Grain Sorghums and Broomcorn

Seed-Color Inheritance in Certain Grain-Sorghum Crosses, by <u>John B. Sieglinger In</u> Jour. Agr. Research, 27:53-64. January 5, 1924.

Minor Cereals

Growing of Rye in the Western Half of the United States, by John H. Martin and Ralph W. Smith. U. S. Dept. Agr., Farmers' Bul. 1358, 18 p., 9 fig. September, 1923. (Received January 31, 1924.)

Experiments with Emmer, Spelt, and Einkorn, by John H. Martin and Clyde E. Leighty. U. S. Dept. Agr. Bul. 1197, 60 p., 3 pl., 3 fig. February, 1924.

Flax

*Flaxsced Production, by <u>T. E. Stoa</u> and <u>A. C. Dillman</u>. N. Dak. Agr. Exp. Sta. Bul. 178, 43 p., 10 fig. April, 1924. (In cooperation with Office of Cereal Investigations.)

General or Miscellaneous

*The Better Utilization of Straws, by <u>C. E. Leighty</u>. <u>In</u> Jour. Amer. Soc. Agron. 16:213-224. March, 1924. (Paper read as a part of the symposium on "The Forage Problem" at the meeting of the American Society of Agronomy at Chicago, Ill., Nov. 12, 1923.)

Student's Method for Interpreting Paired Experiments, by H. H. Love and A. M. Brunson. In Jour. Amer. Soc. Agron., 16:60-68. January, 1924. (Cooperation between Cornell University Agricultural Experiment Station and Office of Cereal Investigations.)

Methods Now in Use in Cereal Breeding and Testing at Cornell University Agricultural Experiment Station, by H. H. Love and W. T. Craig. In Jour. Amer. Soc. Agron., 16:109-127, 8 fig. February, 1924. (Cooperation between Cornell University Agricultural Experiment Station and Office of Cereal Investigations.)

PATHOLOGICAL SUBJECTS

Imperfect and Sac Fungi

Anchorage and Extent of Corn Root Systems, by <u>James R. Holbert</u> and <u>Benjamin Koehler</u>. <u>In Jour. Agr. Research</u>, 27:71-78, 5 pl., 1 graph. <u>January 12</u>, 1924. (Cooperation between Illinois Agricultural Experiment Station and Office of Coreal Investigations.)

Influence of Soil Temperature and Moisture on Infection of Wheat Seedlings by Helminthosporium sativum, by F. H. McKinney. In Jour. Agr. Research, 26:195-217, 6 fig. November 3, 1923. (Received January 17, 1924.) (Cooperation between Wisconsin Agricultural Experiment Station and Office of Cereal Investigations.)

The Intracellular Bodies Associated with the Rosette Disease and a Mosaiclike Mottling of Wheat, by Harold H. McKinney, Sophia H. Eckerson and Robert W. Webb. In Jour. Agr. Research, 26:605-608, 8 pl. December 22, 1923. (Received February 28, 1924.) (Cooperation between Wisconsin and Illinois agricultural experiment stations and Office of Cereal Investigations.)

The Black-Bundle Disease of Corn, by Charles S. Reidy and James R. Holbert. In Jour. Agr. Research, 27:177-205, 6 pl., 4 fig. January 26, 1924. (Cooperation between Funk Bros. Seed Co., Bloomington, Ill., Wisconsin and Illinois agricultural experiment stations and Office of Gereal Investigations.)

Varietal Resistance in Winter Wheat to the Rosette Disease, by R. W. Mobb, C. E. Leighty, G. H. Dungan and J. B. Kendrick. In Jour. Agr. Research, 26:261-270. November 10, 1923. (Received January 12, 1924.) (Cooperation between Illinois and Indiana agricultural experiment stations and Office of Cereal Investigations.)

Disease Resistance as a Factor in the Control of Plant Diseases, by <u>James G. Dickson</u>. <u>In Trans</u>. Wis. State Hort. Soc. 1923: 123-131. [1924]

The Nature of Resistance to Seedling Blight of Cereals, by <u>James G. Dickson</u>, <u>Sophia H. Eckerson</u> and <u>Karl P. Link</u>. <u>In Proc. Nat. Acad. Sci.</u>, 9:434-439, 4 fig. <u>December</u>, 1923. (Received January, 1924.) (Cooperation between University of Wisconsin and Office of Cereal Investigations.)

Rusts

Cytological Studies of Infection of Baart, Kanred, and Mindum Theats by Puccinia graminis tritici Forms III and XIX, by Ruth F. Allen. In Jour. Agr. Research, 26:571-604, 7 pl. December 22, 1923. (Received February 28, 1924.) (Cooperation between California Agricultural Experiment Station and Office of Cereal Investigations.)

Morphological and Physiological Studies on the Resistance of Wheat to <u>Puccinia</u> graminis tritici Erikss. and Henn., by <u>C. R. Hursh</u>. <u>In</u> Jour. Agr. Research, 27: 381-412, 2 pl., 1 fig. February 9, 1924. (Cooperation between Minnesota Agricultural Experiment Station and Office of Cereal Investigations.)

The Effect of Fertilizers on the Development of Stem Rust of Wheat, by <u>E. C. Stakman and O. S. Aamodt</u>. <u>In</u> Jour. Agr. Research, 27:341-380, 3 pl., 4 fig. February 9, 1924. (Cooperation between Minnesota Agricultural Experiment Station and the Office of Cereal Investigations.)

The Effect of Rust Infection upon the Water Requirement of Wheat, by <u>Freeman Weiss</u>. <u>In Jour. Agr. Research</u>, 27:107-118. <u>January 12</u>, 1924. (Cooperation between Minnesota Agricultural Experiment Station and Office of Cereal Investigations.)

Barberry Eradication in Illinois, by <u>F. E. Kempton</u>, <u>G. C. Curran</u> and <u>E. D. Griffin</u>. <u>In Trans</u>. Ill. State Acad. Sci. 16:198-209, 4 fig. 1923. (Received April 29, 1924.) (Cooperation between Extension Division of the College of Agriculture of the University of Illinois and Office of Cereal Investigations.)

Eradication of Common Barberry and Black Stem Rust in Ohio, by John W. Baringer and Wilmer G. Stover. Ohio State University Agr. Col. Ext. Serv. Bul. 13, 16 p., 6 fig. Revised February, 1924. (Cooperation between Ohio State University and Office of Cereal Investigations.)

Downy Mildews

Nocturnal Production of Conidia by <u>Sclerospora graminicola</u>, by <u>William H</u>.

<u>Veston, Jr. In</u> Jour. Agr. Research, 27:771-734, 2 pl., 1 diagram. March 8, 1924.

Smuts

Summary of Literature on Bunt, or Stinking Smut, of Wheat, by Horace M. Woolman and Harry B. Humphrey. U. S. Dept. Agr. Bul. 1210, 44 p. Way 1, 1924. Bibliography p. 21-44. (Cooperation between Washington Agricultural Experiment Station and Office of Cereal Investigations.)

Studies in the Physiology and Control of Bunt, or Stinking Smut, of Wheat, by Horace W. Woolman and Harry B. Humphrey. U. S. Dept. Agr. Bul. 1239, 29 p., 5 pl., 3 fig. May, 1924. (Cooperation between Washington Agricultural Experiment Station and Office of Cereal Investigations.)

Experiments with Flag Smit of Wheat and the Causal Fungus, <u>Urocystis tritici</u> Kcke., by <u>Marion A. Griffiths</u>. <u>In</u> Jour. Agr. Research, 27:427-450, 3 pl., 1 graph. February 16, 1924.

Studies on the Parasitism of <u>Urocystis tritici</u> Koern., the Organism Causing Flag Smut of Wheat, by <u>Robert J. Noble</u>. <u>In</u> Jour. Agr. Research, 27:451-490, 3 pl., 2 fig. February 16, 1924.

The Inheritance of Smut Resistance in Crosses of Certain Varieties of Oats, by A. F. Barney. In Jour. Amer. Soc. Agron., 16:283-291, 4 fig. April, 1924. (Cooperation between Cornell University Agricultural Experiment Station and Office of Cereal Investigations.)

Bacteriological Diseases

A Bacterial Stripe Disease of Proso Millet, by Charlotte Elliott. In Jour. Agr. Research, 26:151-159, 4 pl. October 27, 1923. (Received January 3, 1924.)

PHYSIOLOGICAL AND CHEMICAL SUBJECTS

The Extraction of Nitrogenous Constituents from Plant Cells, by W. E. Tottingham, E. R. Schulz and S. Lepkovsky. In Jour. Amer. Chem. Soc. 46:203-208. January, 1924. (Contribution from the department of agricultural chemistry, University of isconsin, and Office of Cereal Investigations.)

*The Course of Acidity Changes during the Growth Period of Wheat with Special Reference to Stem-Rust Resistance, by Annie May Hurd. In Jour. Agr. Research, v. 27, no. 10, p. 725-735, 5 graphs. March 8, 1924.

On June 30, 1924, the following 48 manuscripts, resulting from the work of the Office of Cereal Investigations, were in press, scheduled to appear in the various series of Departmental publications, in the bulletin series of cooperating State agricultural experiment stations, and in private journals. In addition nine articles on cereal subjects, submitted by members of the staff of the Office during 1922, are awaiting publication in the Agricultural Cyclopedia for Young People.

AGRONOMIC SUBJECTS

Corn

Iojap Striping, a Heritable Chlorophyll Defect of Maize, by M. T. Jenkins. Approved June 25, 1924, for publication in the Journal of Heredity.

Wheat

Segregation and Correlated Inheritance in Crosses between Kota and Hard Federation Wheats, for Rust and Drought Resistance, by <u>J. A. Clark</u>. Submitted March 29, 1924, for publication in the Journal of Agricultural Research.

Varietal Experiments with Hard Red Winter Wheats in Dry Areas of the Western United States, by J. A. Clark and J. H. Martin. Submitted November 8, 1923, for publication as a Department Bulletin.

Comparative Value of Kota and Marquis Wheats for Milling and Breadmaking, by J. A. Clark and J. H. Shollenberger. Approved December 1, 1923, for publication in The Northwestern Miller.

Studies on the Inheritance of Earliness in Wheat, by <u>V. H. Florell</u>. Submitted February 29, 1924, for publication in the Journal of Agricultural Research.

A Method of Detecting Mixtures in Kanred Wheat Seed, by <u>C. O. Johnston</u> and <u>C. W. Bower</u>. Approved April 25, 1924, for publication in the Journal of the American Society of Agronomy.

Pistillody in Wheat Flowers, by <u>C. E. Leighty</u> and <u>W. J. Sando</u>. Approved May 14, 1924, for publication in the Journal of Heredity.

'Hairy-Neck' Wheat Segrogates from Wheat-Rye Hybrids, by <u>C. E. Leighty</u> and <u>J. W. Taylor</u>. Submitted March 31, 1924, for publication in the Journal of Agricultural Research; page proof June 19.

The Genetic Relation between <u>Triticum dicoccum dicoccoides</u> and a Similar Morphological Type Produced Synthetically, by <u>H. H. Love and W. T. Craig.</u> Submitted March 23, 1924, for publication in the Journal of Agricultural Research.

The Inheritance of Pubescent Nodes in a Cross between Two Varieties of Wheat, by H. H. Love and W. T. Craig. Submitted April 15, 1924, for publication in the Journal of Agricultural Research.

The Furrow Method of Sowing Wheat in the Judith Basin, by R. F. May. Submitted April 22, 1924, for publication as a cooperative bulletin of the Montana Agricultural Experiment Station.

Oats

Markton, an Ost Variety Immune from Covered Smut, by T. R. Stanton, D. E. Stephens and E. F. Games. Submitted March 31, 1924, for publication as a Department Circular.

Barlev

Some Cases of Apparent Single Fertilization in Barley, by <u>H. V. Harlan</u> and M. N. Pope. Approved January 15, 1924, for publication in the Journal of Botany.

Albinism in Barley, by G. A. Viebe. Approved February 29, 1924, for publication in the Journal of Heredity.

Rice

How to Grow Rice in the Sacramento Valley, by J. W. Jones. Submitted December 2, 1922, for publication as a Farmers' Bulletin; page proof April 17, 1924.

Flaz

Production of Seed Flax, by A. C. Dillman. Submitted January 30, 1924, for publication as a Farmers' Bulletin to supersede Farmers' Bulletin 785.

Minor Corcals

Emmer and Spelt, by J. H. Lartin and C. E. Leighty. Submitted January 25, 1924, for publication as a Farmers: Bulletin; page proof June 18.

Ceneral or Miscellaneous

Cereal Broading at Ames, by L. C. Burnett. Submitted June, 1924, as a cooperative contribution to the Yearbook of the Iowa State Department of Agriculture.

Experiments with Gereals at the Akron Field Station in Colorado, by <u>F. A.</u> Coffman. Submitted August 31, 1923, for publication as a Department Bulletin.

Cereal Crops, by R. W. Smith. Submitted March 12, 1924, as a cooperative contribution to the Superintendent's reports of the Dickinson Substation for the years 1922 and 1923, to be published as a bulletin of the North Dakota Agricultural Experiment Station.

Spring Crops for Eastern Oregon, by <u>D. E. Stephens</u>. Submitted April 21, 1924, for publication as a cooperative bulletin of the Oregon Agricultural Experiment Station.

Experiments with Small Grains on the Arlington Experiment Farm, by <u>J. W. Taylor</u>. Submitted January 28, 1924, to be published as a bulletin in the Department series.

PATHOLOGIC SUBJECTS

Imperfect and Sac Fungi, etc.

The Corn Root, Stalk, and Ear-Rot Diseases and their Control Through Seed Selection and Breeding, by J. R. Holbert et al. Submitted February 1, 1924, for publication as a cooperative bulletin of the Illinois Agricultural Experiment Station; galley May, 1924.

Rosette Disease of Wheat and Its Control, by A. G. Johnson, H. H. McKinney, R. W. Webb and C. E. Leighty. Submitted June 19, 1923, for publication as a Farmers' Bulletin to supersede Farmers' Bulletin 1226; page proof May 25, 1924.

Wheat Scab and Corn Rootrot Caused by <u>Gibberella saubinetii</u> in Relation to Crop Successions, by <u>B. Koehler</u>, <u>J. G. Dickson and J. R. Holbert</u>. Submitted January 29, 1924, for publication in the Journal of Agricultural Research.

Factors Influencing Lodging in Corn, by <u>B. Koehler</u>, <u>G. H. Dungan</u> and <u>J. R. Holbert</u>. Submitted February 29, 1924, for publication as a cooperative bulletin of the Illinois Agricultural Experiment Station.

Investigations on the Nematode Disease of Cereals Caused by <u>Tylenchus tritici</u>, by <u>R. W. Leukel</u>. Submitted October 20, 1923, for publication in the Journal of Agricultural Research.

Equipment and Methods for Studying the Relation of Soil Temperature to Diseases in Plants, by R. W. Leukel. Approved April 25, 1924, for publication in Phytopathology.

An Ascigerous Stage and Synonymy for <u>Fusarium moniliforme</u>, by <u>G. O. Wineland</u>. Submitted March 31, 1924, for publication in the Journal of Agricultural Research.

Rusts

The Relation of Common Barberry Bushes to the Occurrence of Stem Rust of Wheat and other Cereals in Ohio, by <u>J. W. Baringer</u>. Submitted April 15, 1924, for publication as a cooperative bulletin of the Ohio State Department of Agriculture.

Relation of Barberries to Stem Rust of Wheat: Results of Indiana Survey, by K. E. Beeson. Approved February 7, 1923, for publication in the Proceedings of the Indiana Academy of Science.

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Downy Mildews

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Bacteriological Diseases

Bacterial Blight of Rye, by <u>C. S. Reddy</u>, <u>J. Godkin</u> and <u>A. G. Johnson</u>. Submitted April 19, 1924, for publication in the Journal of Agricultural Research; galley proof June 13.

PHYSIOLOGICAL AND CHEMICAL SUBJECTS

Effects of the Method of Desiccation on the Nitrogenous Constituents of Plant Tissue, by <u>K. P. Link</u> and <u>E. R. Schulz</u>. Approved January 30, 192¹, for publication in the American Journal of Chemistry.

Some Effects of Sodium Arsenite When Used to Kill Common Barberry, by <u>E. R. Schulz</u> and <u>N. F. Thompson</u>. Submitted June 27, 1924, for publication as a bulletin in the Department series.

PROJECT REPORTS

RUST INVESTIGATIONS (Dr. H. B. Humphrey, Pathologist in Charge.)

Report of Progress in Barberry Eradication for the Fiscal Year Ending June 30, 1924.

Dr. F. E. Kempton, Pathologist in Charge, and L. D. Hutton, Pathologist, in Barberry Eradication.

The barberry eradication campaign was organized in February and March, 1918, by the Office of Cereal Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, in cooperation with the following 13 north-central grain-growing States: Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming. The purpose of the campaign is to eradicate every harmful barberry from these 13 States as a means of reducing stem-rust losses.

The eradication campaign in each State is supervised by a State leader who follows the general policies outlined by the Office of Cereal Investigations. Field assistants are hired during the summer months. Under the leader's direction these field assistants emphasize the three different phases of the campaign, i.e., publicity and education, survey, and eradication in each State as seems necessary.

Although some preliminary publicity and survey had been done in the spring of 1918, the actual survey began on July 1 of that year. On that date an appropriation of \$150,000 for barberry eradication became available for the fiscal year. The annual appropriations for the following three fiscal years were about \$150,000. On July 1, 1922, the appropriation was increased to \$350,000. For the fiscal year beginning July 1, 1923, an appropriation of \$425,000 was made. Of the latter amount, \$125,000 became available only when an equal amount was furnished by the cooperating State and other agencies. Theappropriation of \$411,315 for 1924-25 also requires that \$111,315 must be met by an equal fund raised by the States and cooperating gencies. This amount has been certified and the entire appropriation of \$411,315 pecame available July 1, 1924.

Publicity and Education

An increasing amount of publicity has been necessary to keep the public informed of the purpose and progress of the campaign. This demand for more information is being met in various ways. In many of the States special publicity men are selected from among the field assistants to take care of the educational phases of the campaign. Under the direction of the State leaders and the publicity men bulletins and posters are distributed, talks are made, and speeches radiocasted. Barberry bushes are exhibited at State and County fairs and the relation between the common barberry bush and black stem rust is emphasized. Community eradication days, popularly known as "barberry bees," often are organized to clear large areas of escaped barberry bushes.

The Conference for the Prevention of Grain Rust, an organization composed of the governors, commissioners of agriculture, representatives of the State agricultural experiment stations, and presidents of farm bureaus and corresponding organizations of each of the 13 States, and an additional membership at large, comprising representatives of the milling, railroad, farm implement, banking, and other commercial organizations, and national farmers' organizations, has cooperated in many ways to make the campaign more effective. The Conference has furnished and distributed a million copies of a circular intended especially for farmers. Special statements to bankers, charts for use in schools, and samples of common barberry for use in identifying the bush have been effectively distributed. Thousands of colored posters illustrating the rock-salt method of killing barberries, describing the life cycle of black stem rust, and showing the characteristics of the common and Japanese barberries have been distributed.

The Conference, since its organization in 1921; has distributed over 2,000,000 pieces of literature. Sixty panel exhibits have been circulated among the high schools of the barberry-eradication States. Dozens of displays have been placed in banks, grain elevators, stores, and markets. Fifteen prints of a motion-picture film showing the various phases of barberry eradication have been placed in the hands of the State leaders to supplement the material furnished by the U.S. Department of Agriculture. The newspaper publicity department of the Conference has sent out over 2,000 different stories to 6,000 publications in the 13 States.

Since the beginning of the campaign the U. S. Department of Agriculture has sent out over 1,600,000 copies of bulletins and circulars relating to barberry eradication. The Department also has furnished to State leaders copies of the motion-picture film, "The Barbarous Barberry," and 16 sets of a lantern-slide series, "Kill the Common Barberry." An additional number of sets of the latter is being circulated by the Extension Division of the U. S. Department of Agriculture.

Thousands of circular letters and State bulletins relative to the progress of the campaign have been distributed by the leaders in each State. State leaders and publicity men have furnished nearly 2,000 stories of the campaign to local papers.

Survey

Original survey. The original survey includes a property-by-property survey in cities, towns, and villages and a farm-by-farm survey in the country. The original survey of the cities, towns, and villages was largely completed in the first years of the campaign. From April 1, 1918, to June 30, 1924, inclusive, 667.8 counties of the 894.5 requiring an original survey have been surveyed. Federal funds were used for the survey of 613.8 counties and State funds for the remaining 54 counties. In the fiscal year July 1, 1923, to June 30, 1924, 183 counties were surveyed, 169 with Federal funds and 14 with State funds. During this period 227,413 barberry bushes were found on 7,129 properties and 248,483 bushes were eradicated from 8,895 properties. The bushes eradicated in excess of the bushes found are bushes found but not destroyed in previous years. In the entire campaign 6,075,392 bushes were found on 63,876 properties. Of these 5,445,255 were removed from 62,060 properties.

Second survey. A second complete survey was made of approximately 53 counties in the fiscal year ending June 30, 1924. Previously, only two counties had been surveyed a second time. The necessity for a second survey became apparent when local epidemics of stem rust were traced to barberries which had been overlooked in the original survey. In most cases the bushes found on second survey were bushes which had been cut down just previous to the original survey and had grown again. However, much has been learned about escaped bushes since the original survey began and many of the bushes found on second survey were escaped bushes. In the year, 4,433 bushes were found and 4,232 bushes removed from 324 properties in the second survey. In addition, 1,339 seedlings were found and removed from 12 of these properties. In the entire campaign to June 30, 1924, 5,500 bushes and 1,339 seedlings had been found on 361 properties during the second survey. All of the seedlings and 5,299 of the bushes had been destroyed. As the second survey really is another original survey, all of the results of the second survey are included in the original-survey results.

Resurvey. Resurveys are made only of those properties on which barberry bushes have been found previously. The resurvey is made to determine if the bush is completely eradicated. Barberries are very difficult to kill and the entire root system must be removed or killed at the time of eradication or sprouts will grow from the remaining living roots. Even after the complete eradication of the original bushes resurveys may be necessary to ascertain if seedlings are germinating from the seeds of the old bushes. It is the policy in every State to follow the original survey by a resurvey after a one-year interval.

Puring the past fiscal year 271 counties were resurveyed. In these counties 98,065 sprouting bushes are found, and 97,572 sprouting bushes were destroyed on 2,979 properties. Of the 254,248 sprouting bushes found in the entire campaign 253,188 have been destroyed. In the resurvey the number of seedlings found was 2,055,757 and the number destroyed was 2,005,757.

<u>Eradication</u>

Until the fall of 1922 and the spring of 1923 most of the barberry bushes and seedlings found were dug. It was evident after the first two years of the campaign that pulling and digging were not satisfactory methods of cradicating barberry bushes, in a majority of instances. Many barberry bushes grow in rocky soil, in the crevices of rocks, and near the roots of other shrubs and trees. This makes it impossible to remove all portions of the root systems. As a consequence sprouts appear in the following spring and summer.

As a result of these observations, experiments with chemical methods of eradication were begun in the fall of 1921. Of the 40 chemicals used experimentally only two were found to be inexpensive, easily obtainable, and uniformly effective. These were crushed rock salt and a sodium arsenite solution. Both of these were used in the fall of 1922 and in the spring of 1923. However, sodium arsenite proved to be disagreeable to apply and dangerous to livestock and poultry and its use was discontinued. Crushed rock salt, flake or packers' salt, and even table salt, have proved very effective.

Experiments with kerosene indicate that it may prove valuable for killing bushes, its only disadvantage being that the bush does not die immediately following treatment. In spring-wheat areas where a live barberry bush is a source of infection which may start an epidemic over a large area, it is not deemed advisable to use kerosenc because the bush still can spread infection for a time to near-by grains and grasses. The chemical method of cradication is so effective that it is used whenever possible, since it materially reduces both the primary cost of the eradication and the number of necessary resurveys.

From the beginning of the chemical eradication to June 30, 1924, 534.4 tons of salt, 1029.5 gallons of sodium arsenite, 3,114 gallons of kerosene, and 158.4 gallons of drip oil have been used to treat 121,305 criginal bushes, 94,718 sprcuting bushes, and 2,858,564 seedlings.

Escaped bushes. The most serious problem of eradication is the spread of escaped barberries to near-by woodlands, fence rows, stream banks, brushy pastures, and rocky ledges. As a rule barberry seeds are scattered by birds, but other animals, streams, winds, and similar agencies may spread the seeds for many miles from the original bushes. All of these seeds apparently do not germinate immediately and seedlings continue to appear each spring for a number of years after the original fruiting bushes are destroyed.

Some escaped bushes have been found in each State. The majority of properties on which escaped bushes have been found, however, are in Wisconsin, Illinois, Michigan, and Iowa. To June 30, 1924, escaped bushes totaling 3,600,669 have been found on 4,717 properties in the entire eradication area.

Investigations

Stem-rust investigations. One of the most important investigations in connection with barberry eradication is the study of the spread and control of black stem rust. This work, under the direction of Dr. E. C. Stakman, pathologist, and Edmund B. Lambert, assistant pathologist, is being conducted in the 13 eradication States and in neighboring States whose proximity may affect the rust situation in the eradication area. This work consists of overwintering studies, finding and mapping local or larger rust epidemics, and finding, if possible, the source of these epidemics. The leaders and their assistants cooperate in reporting the presence, prevalence, and severity of stem rust. They report, when possible, the source of the inoculum and the general trond of the epidemic.

In this way many of the local and some of the large rust epidemics of 1923 were traced directly to the offending barborry bushes. In many instances these observations led to a second survey of rusted areas, with the result that one or more bushes were found and their suspected part in the local epidemic verified.

Ecological investigations. The relation of environment to the distribution of barberry bushes has been studied in the New England States, New York, New Jersey, eastern Pennsylvania, Virginia, and northern Delaware. Particular attention has been given to the areas of escaped barberries throughout these States. Colorimetric analyses of soils were made and data compiled on the several floristic and ecologic factors which characterize certain areas of escaped barberry bushes.

Study of barberry species and hybrids. In cooperation with the Office of Horticultural Investigations, a Berberis garden has been established near Bell, Maryland, wherein all known foreign and native species, and hybrids of Berberis are being assembled for description and classification. The susceptibility of all of these species and hybrids is being determined at St. Paul, Minn., under controlled conditions. Having once determined the susceptibility of all species and hybrids of Berberis these important data can be used in regulating their transportation and sale.

Investigations are being made of the native species of barberry (Berberis canadensis Miller), which has been found along the Tippecanoe River in Indiana. Previously this species was not known to be growing in the eradication area. It is naturally susceptible and spreads stem rust to grains and grasses. In certain localities it is a great menace to small grains and must be removed. Limited experiments show that bushes of this species may be eradicated by an application of salt.

Special chemical studies. An article, entitled "Some Effects of Sodium Arsenite When Used to Kill Common Barberry," by E. R. Schulz and N. F. Thompson, has been submitted for publication. Further chemical studies are being made of (1) the action of salt on plant tissues with special reference to the common barberry; (2) the relation of seasonal storage of reserve food products in the different parts of the barberry plant to the time of year for effective treating with chemicals; (3) the sterilizing effects of salt on soil; and (4) analyses of barberry tissues for alkaloids, such as berberine and hydrastine, and for glucosides, with methods for their extraction.

Summary

Summary of eradication July 1, 1923, to June 30, 1924. During the fiscalyear an area equivalent to approximately 183 counties was covered in the original survey, 271 counties in the resurvey, and 53 counties in the second survey. On criginal survey 227,413 bushes were found on 7,129 properties, and 248,483 bushes were eradicated from 8,895 properties. These included 4,433 bushes on 324 properties found on the second survey. On resurveys 98,065 sprouting bushes were found and 97,572 were eradicated. A total of 3,716,097 seedlings was found and 3,666,203 was eradicated on original survey, resurvey, and second survey.

This makes a grand total for the fiscal year of 4,(41,575 bushes, seedlings, and sprouting bushes found and 4,012,258 eradicated.

Summary of the entire campaign, from April 1, 1918, to June 30, 1924. The equivalent of approximately 668 counties has been covered in the original survey and 55 counties in the second survey. The first resurvey has followed the original survey as rapidly as practicable. On original survey, 6,075,392 bushes were located on 63,876 properties and 1,769,721 seedlings on 886 properties. These numbers include 5,500 bushes on 361 properties and 1,339 seedlings on 12 properties found in second survey. In addition, there have been found on resurveys 254,248 sprouting bushes on 9,199 properties and 2,055,757 seedlings on 2,930 properties.

There have been destroyed 5,445,255 bushes on 62,060 properties, 3,770,578 seedlings on 3,808 properties, and 253,188 sprouting bushes on 9,176 properties. These make a grand total of 10,155,118 bushes, seedlings, and sprouting bushes found, and 9,469,021 destroyed in all surveys to date.

Data showing, by States, in fiscal and in calendar years, the progress of the farm-to-farm survey in the barberry eradication campaign from January 1, 1919, to June 30, 1924.

Original farm-to-farm survey only

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*Fed. = Federal funds; St. = State funds a. Fiscal year 1924 State appropriations expended under direction of Federal State Leader

Data showing, by States, the numbers of properties upon which barberry bushes and seedlings were found and destroyed on original survey in the barberry eradication campaign from July 1, 1923 to June 30, 1924.

Table 2.

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*	Stafe	100	Colorado Illinois Indiana Iowa Michigan Michigan Minnesota Montana Nebraska N. Dakota Ohio S. Dakota Wisconsin Wyoming	Totals :1

on original survey in the barberry eradication campaign from July 1, 1923 to June 30, 1924 Data showing by States, the numbers of barberry bushes and seedlings found and destroyed

Table 3.

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	destroyed:	Total :	193 10,692 21,119 22,223 93,525 3,051 1,752 2,301 2,4,964 7,214 27,635	: 248,483 :1
	Number of bushes d	Treated	25,547: 20,5747: 14,491: 2,360: 3,117: 6,313: 14,135:	112,165:
	Number o	Dug	15,145: 7,394: 79,034: 19694: 1,635: 16,952: 13,500: 13,500: 0:	413: 136,318:
	****	Total	191: 16, 191: 14, 185: 85, 631: 7, 017: 2, 301: 15, 390: 2, 594: 10, 629: 2, 594:	:227,413:
	punoj s	Total::	35,241 47,952 11,000 77,574 2,582 2,582 7,353 2,212 7,353 2,547 9,060 2:547	: : : : : : : : : : : : : : : : : : :
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		State	Colorado Illinois Indiana Iowa Minnesota Montana Nebraska N. Dakota Ohio S. Dekota Visconsin Wyoming	Totals

Data showing, by States, the numbers of properties upon which barberry bushes and seedlings were found and destroyed on second survey during the fiscal year July 1, 1923 to June 30, 1924, and in the entire campaign April 1, 1918 to June 30, 1924

Table 4.

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* No second survey was done before 1923 except as noted in Minnesota in 1922

Data showing, by States, the numbers of barberry bushes and seedlings found and destroyed on second survey during the fiscal year, July 1, 1923 to June 30, 1924, and in the entire campaign April 1, 1918 to June 30, 1924

Table 5.

1	1 1	1				1
	Total	000	25 0 93 418 2	0001	1,339	1,339
2 0	yed					
f seedlings	Destroyed Treated	000	25 0 61 0 418	00 0 0	507	507
					•• •• ••	••
Number of	Dug	000	000000	0000	832	832
	Found	000	చిందిం <u>ట</u> 	0007	1,339	1,339
destroyed :	Total	73:00:132:	525 525 1,149 1,128	8800 126	4,232:	5,299 :
of bushes des	Treated :	: 69	363 : 0 : 0 : 0 : 0 : 0 : 0 : 0 : 0 : 0 :	352 95 0	3,771:	3,771 :
Number c	Due:	90%	16004	283	461 : 1,067 :	1,528:
••	Total:	73:	525 525 0 1,342 1,123	880	4,433:	
s found	i	73 : 65 : 65 : 65		670 121 0	693 : 3, 743 : 4, 433 39 : 1, 011 : 1, 067	737 :4,754 : 5,500
f bushe	In country: Escaped: To	¥ 0 4	303	0000	593 :3	737 : h
Number of bushes found	: In cities: : : : : : : : : : : : : : : : : : :	2500	325 C C C C C C C C C C C C C C C C C C C	210	690 :	: 97,2
	In and	** ** ** **		••	•••••	•• ••
	States	Colorado Illinois Indiana	Michigan Minnesota Montana Nebraska N. Dakota	S. Dakota Wiscensin Wyoming	fiscal year Minnesota ** (1922)	Apr. 1'18 to June 30'24

* No second survey was done before 1923 except as noted in Minnesota in 1922

200.	which Total :	142 1695 1697 107 107	735
**	ida 		••
seedlings v 1, 1923	properties on Ss were - Destroyed Treated	170 % 57 % 55 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	297
from July	of prodlings	1982, 28 p. 1965, 20 p. 1965,	1,33:
ूर्य हैं प्रमुख	s e e	·	••
sprouting bushes on campaign from	Number see	142 169 169 108 108 108 108	736
	72 72 73	1527 2355 1985 1985 1985 1985 1985 1985 1985 19	: 62
on which spi eradication	properties ting bushes Total		2,979
upc	proprint		
properties upon which the barberry eradicati	unber of prope of sprouting Treated : I	293 293 11 156 150 157 157 157 157 157 157 157 157 157 157	1,425
prop	nu • eq		••
ofin	Total number	245 282 123 223 51 51 606 606 161	:1,554
numbers resurvey		~ % 6~ 1001 ~ 10 10 10 1 % 6	
the on	nich nd Total	238 129 138 198 198 655 655 655 9	2,979
es,	four four i	02202874628464	
Data showing, by States, were found and destroyed to June 30, 1924	Number of properties on whisprouting bushes were found: In country: In cities: Eaving: and towns: escaped: Total: bushes:	282 102 102 103 103 103 103 103 103 103 103 103 103	763:1,825:
by g	rti	11 11 12 15 15 15 15 15 15 15 15 15 15 15 15 15	, W
Data showing, by were found and do to June 30, 1924	Number of properti sprouting bushes v In courses Eaving: and towns: escaped:	24 146 57 86 97 113 113 0 0 0 0	73
owir und 30,	विस् इ		• •
t she for	er o utin Ltie cown	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1,154:
Jate were to J	umbe prou		-
- ·	Z in H d		4.6
	0	0	
Table 6.	S ta te	Colorado Illinois Indiana Iowa Michigan Minnesota Montana Mebraska N. Dakota Ohio S. Dakota Wisconsin Wyoming	Ę
Tab1		Colored Illinoi Indiana Iowa Michiga Minneso Montana Nebrask N. Dako Ohio S. Dako Wiscons Wiscons	Total

Data showing, by States, the numbers of sprouting bushes and seedlings found and destroyed on resurvey in the barberry eradication campaign from July 1, 1923 to June 30, 1924

Table 7.

	Number	of sprou	Number of sprouting bushes found	es found	: Number	of sprout	of sprouting bushes:		Number of seedlings	eedlings	
State	:In cities:		In country		: Dug :	Treated	Total	: Found :	Α	Destroyed	
	and towns; Escaped	1s: Escape	d : Total:	: Total			• • •		Dug	Treated:	Total
Colorado	. 17	73: 683	169 : 23	t198	38	828	1887.	600	დ	8 37 :	000
Illinois	 	33: 1,898	18: 3,537	064 4 :	1,102	3,388	064,4	28.979:	15,133.	13,846:	28,979
Indiana	1,	••	••		: 116 :	1,721	: 1,837	3,862:	255:	3,007:	3,262
Lowa	†09 · :		••		: 1,042 :	5,889	1. 6,931	: 6,6,42;	2,403:	4,239	2t9'9.
. Michigan		31: 1,068	8 : 1,896:		1,685	. 552	: 2,247	: : 541,575;	541,490:	85:	541,575
Minnesota	:		••		: 443 :	5,355	: 5,798	· · · 16,2%	656:	15,578:	16,234
Montana		· .	0: 172		: 160 :	0	150	: 645;	0	645 :	. 6 1 5
Nebraska	: 684		54: 2,654:		: 999 :	2,702	3,358	2,502:	828	1,674:	2,502
N. Dakota		115:	0: 32	: 147	: 74	001	17T.	ö			0
Ohio	: 1,610	10; 2,642	••		: 3,470 :	1,933	5,453	: 208,845:	58,096	180,750:	208,846
S. Dakota	••	ö	0:1,435:		0	1,435	1,435	1,376;	0	1,376:	1,376
Wisconsin	: 85	855; 61,37	61,375:63,752:64	:64,617	: 2,134:	62,545	: 64,779	:1,178,534:	57,332:	1,071,202:	1,128,534
Wyoming			0: 22:	••	: 37 :	16	: 53	36:	36:		36
						and the comments of the control of t	the same of the sa		ente dem e e cent constituire ente distribuir a colori quen a	# # # # # # # # # # # # # # # # # # #	The state of the s
Total	: 6,17	3: 77,15	6,173: 77,158:91,892:98,065	:98,065	:10,940 : 86,632	86,632	: 97,572	:1,989,560:646,321 :: 1,293,239	646,321 .:	1,293,239:	1,939,560

879

Data showing, by States, the number of barberry bushes and seedlings found and removed on original survey in the barberry eradication campaign from April 1, 1918, to June 30, 1924

Table 9.

						0	844	469	380	960	099	645	168	156	836	188	548	0	
	F		Total				1,518.		ζ,	183,	19,		Ġ,			17,	15,	`	ĺ
ngs	Destroyed	••	Treated:	••			.510.284:1.5		1,794:	32,826:	375:	645:	5,768:	9	560:	609:	10,372:	Ö	
of seedlings		••	Dug:			ö	8,164:1.5	:969		150,272:									
Number of	••	••	Found:			ö	518,448:	:469	2,380:	183,098:1	19,660:	645:	6,168:	156:	836:	17,188:	20,448:	ö	
destroyed:			Total:		,	24,225:	172,591:1	117,779:	787,059:	314,615:	782,435:	9,195:	93,470:	21,823:	.239,891:	58,020:	,820,186:	3,968:	
bushes		••	:Treated:	••		394:	26,152:	20,682:	15,465:	14,491:	2,515:	383:	3,223:	2,285:	9,885:	9,630:	16,198:2	 	
Number of	••	,.	Dug:	•		23,829:	146,439:	97,097:	771,594:	300,124:	779,920:	8,812:	90,247:	19,538:	230,006:	48,390:	,803,988:	3,966:	
		••	Total:	••		24,224:	184,723:	145,776:	787,154:	350,740:	782,435:	9,851:	93,493:	21,823.:	246,565:	58,	366,	4,142:	
found	r.y.	••	Total:	••		4,638:	82,987:	69,114:	138,346:	298,240:	190,275:	3,075:	20,559:	7,455:	37,721:	35,277:	279,869:3,075,032:3,086,190:3,	196:	
Number of bushes found	In country	••	Escaped:			2,546:	50,900:	54,946:	55,164:	230,248;	80,158:	748:	5,435:	150:	24,619:	20,722:	,075,032:3		
Number	In		and:	towns :		19,586:		76,662:		52,500:		6,776:	72,934:	14,368:	208,844:	23,130:	279,869:3	3,946:	
	••	••	••	•••			· •	••	••	••	ta :	••			••		in :	••	Ċ
			State			Colorado	Illinois	Indiana	Iowa	Michigan	Minnesota	Montana	Nobraska	N. Dakota	Ohio	S. Dakota	Wisconsin	Wyoming	E 0 + 0 E

:2,101,319:3,600,669:3,974,073:6,075,392:5;323,950:121,305:5,445,255:1,769,721:201,484:1,563,337:1,76⁴,821

Table 10. Data showing, by calendar years, half years, fiscal years, and entire campaign, the numbers of properties on which barberry bushes were found and destroyed in the barberry eradication campaign from April 1, 1918, to June 30, 1924

```
:Number of properties on which :Total number of properties
                                                             cleared of bushes
                           bushes were found
                                                  :Total :
                                    In country
                           In
   Period
                        :cities : Having :
                                                  : in
                                                                               Total
                                                            Dug : Treated:
                                 :escaped: Total :cities:
                                                 :: and
                         towns : bushes :
                                                  : country
                        : Data for this period are included with the July 1-Dec. 31'18
April 1 - June 30'18
                                                                           data.
                                                                               16,764
                                             1,166:23,210:16,764:
                                                                          0:
                        : 22,044:
                                      127:
July 1 - Dec. 31'18
                                             1,166:23,210:16,764:
                                                                          0:
                                                                               16,764
                          22,044:
Apr. 1'18 - Dec. 31'18:
                                      127:
                                                                               16,848
                                             4,611:18,715:16,848:
                                                                          0:
                                    1,298:
                          14,104:
Jan. 1 - Dec. 31'19
                                                                                4,909
                                                                          0:
                                               782: 7,915: 4,909:
Jan. 1 - June 30'19
                            7,133:
                                      231:
                                                                               21,673
                                             1,948:31,125:21,673:
                                                                          0:
July 1'18 - June 30'19 : 29,177:
                                       358:
                                                                               11,939
                                             3,829:10,800:11,939:
                                                                          0:
                                    1,067:
July 1'19 - Dec. 31'19: 6,971:
                                                                                33,612
                                             5,777:41,925:33,612:
                                                                          0:
                           36,148:
                                     1,425:
Apr. 1'18 - Dec. 31'19:
                                                                                5,635:
2,168
                                                                          0:
                                             1,675: 2,928: 5,635:
Jan. 1 - Dec. 31'20
                                       384:
                            1,253:
                                                                          0:
                              525:
                                                       703: 2,168;
                                        22:
                                               178:
Jan. 1 - June 30'20
                                                                                14,107
                                             4,007:11,503:14,107:
                                                                          0:
                            7,496:
                                     1,089:
July 1'19 - June 30'20
                                                                                 3,467
                                                                          0:
                                             1,497: 2,225: 3,467:
                                       362:
July 1'20 - Dec. 31'20:
                              728:
                                                                                39,247
                                             7,452:44,853:39,247:
                                                                          0:
Apr. 1'18 - Dec. 31'20 :
                           37,401:
                                     1,809:
                                                                                 6,337
                                             2,303: 5,073: 6,336:
                                                                          1:
                            2,770:
                                       553:
Jan. 1 - Dec. 31'21
                                                                                 2,539
                                                                          0:
                                                680: 1,404: 2,539:
                                       161:
                              724:
Jan. 1 - June 30'21
                                             2,177: 3,629: 6,006:
                                                                                 6,006
                                                                          0:
                                       523:
July 1'20 - June 30'21:
                            1,452:
                                                                                 3,798
                                             1,623: 3,669: 3,797:
                                                                          1:
                                       392:
July 1'21 - Dec. 31'21:
                            2,046:
                                                                                45,584
                                             9,755:43,926:45,583:
                                                                          1:
                                     2,362:
                           40,171:
Apr. 1'18 - Dec. 31'21:
                                                                                 6,408
                                             3,509: 5,918: 6,397:
                                                                         11:
Jan. 1 - Dec. 31'22
                                       830:
                            2,409:
                                                                                   793
                                                                          0:
                                                       361:
                                                               793:
                                                198:
                              163:
                                        79:
Jan. 1 - June 30'22
                                                                                 4.591
                                                                          1:
                                              1,821: 4,030: 4,590:
                            2,209:
                                       471:
July 1'21 - June 30'22
                                                                                 5,615
                                              3,311: 5,557: 5,604:
                                                                         11:
                            2,246:
                                       751:
July 1'22 - Dec. 31'22:
                                                                                51,992
                                                                         12:
                                            13,264:55,844:51,980:
                           42,580:
                                     3,192:
Apr. 1'18 - Dec. 31'22:
                                                                                 9,183
                                                                      2,668:
                                              3,744: 7,371: 6,515:
                                     1,345:
Jan. 1 - Dec. 31'23
                             3,627:
                                                                                 1,173
                                                                         237:
                                                               936:
                                       148:
                                                413:
                                                       903:
                               490:
Jan. 1 - June 30'23
                                                                                 6,788
                                                                         248:
                                              3.724: 6,460: 6,540:
                                       399:
July 1'22 - June 30'23:
                            2,736:
                                                                                 8,010
                                                                       2,431:
                                              3,331: 6,468: 5,579:
                                     1,197:
July 1'23 - Dec. 31'23:
                            3,137:
                                                                                61,175
                                                                       2,680:
                                            17,008:63,215:58,495:
                           46,207:
                                     4,537:
Apr. 1'13 - Dec. 31'23:
                                                                                    885
                                                                         295:
                                                       661:
                                                               590:
                                                325:
                                       180:
Jan. 1 - June 30'24
                               336:
                                                                                  8,895
                                                                       2,726:
                                              3,656: 7,129: 6,169:
 July 1'23 - June 30'24
                             3,473:
                                     1,377:
                                                                                 62,060
                                     4,717: 17,333:63,876:59,085:
                                                                       2,975:
                            46,543:
 pr. 1'18 - June 30'24:
```

Table 11. Data showing, by calendar years, half years, fiscal years, and entire campaign, the numbers of barberry bushes found and destroyed in the barberry eradication campaign from April 1, 1918, to June 30, 1924

```
Number of bushes destroyed
                      :Number of bushes found
                                   In country
                         In
                      :cities :
                                       :
                                                                  :Treated:
     Period
                         and
                               : Escaped :
                                           Total : Total
                                                             Dug
                        towns
                      :Data for this period are included in July 1 - Dec. 31'18
April 1 - June 30'18
                                                                    data.
                                                                            0:1690,475
                      :1665,398:
                                   77,438: 176,341:1842,239:1690,475:
July 1 - Dec. 31'18
                                                                            0:1690,475
Apr. 1'18 - Dec. 31'18 :1665,898:
                                   77,438: 176,341:1842,239:1690,475:
                                                                            0:2025, 389
Jan. 1 - Dec. 31'19
                       : 337,246:1680,806:1758,817:2096,063:2025,389:
                                                                            0: 82,770
Jan. 1 - June 30'19
                      : 91,156: 15,966: 42,521: 133,677: 82,770:
                                                                            0:1773,245
July 1'18 - June 30'19 :1757,054:
                                 95,404: 218,862:1975,916:1773,245:
July 1'17 - Dec. 31'20: 246,090:1664,340:1716,296:1952,386:1942,519:
                                                                            0:1942,619
Apr. 1'18 - Dec. 31'20 :2003,144:1758,244:1935,158:3938,302:3715,864:
                                                                            0:3715,864
Jan. 1 - Dec. 31'20
                         13,103:1436,282:1492,904:1506,007: 518,315:
                                                                            0: 518,315
                                                                            0: 67,853
                                   3,600:
                                            9,174: 10,982: 67,853:
Jan. 1 - June 30'20
                          1,808:
                                                                            0:2010,472
July 1'19 - June 30'20 : 247,898:1566,440:1725,470:1973,368:2010,472:
                                                                            b: 450,462
July 1'20 - Dec. 31'20 : 11,295:1434,681:1483,730:1495,025: 450,462:
                                                                            0:4254,179
lpr. 1'18 - Dec. 31'20 :2016,247:3194,526:3428,062:5444,009:4234,179:
                                                                            5: 209,647
                          33,266: 100,659: 142,396: 175,662: 209,639:
Jan. 1 - Dec. 31'21
                          4, 594: 17, 280: 25, 356: 29, 729: 54, 022:
                                                                            0: 54,022
Jan. 1 - June 30'21
                          15,689:1451,962:1509,065:1524,754: 504,454:
                                                                            0: 504,484
July 1'20 - June 30'21
                                                                            ã: 155,625
July 1'21 - Dec. 31'21:
                          28,872: 83,379: 117,061: 145,933: 155,617:
                                                                            8:4443,326
Apr. 1'18 - Dec. 31'21 :2049,513:3295,185:5570,458:5619,971:4443,818:
Jan. 1 - Dec. 31'22
                          19,504: 133,365: 139,393: 209,397: 727,898:
                                                                        1,823: 729,721
                                                                            0: 14,512
                                             4,550: 5,518:
Jan. 1 - June 30'22
                             768:
                                   1,193:
                                                             14,512:
July 1'21 - June 30'22
                                                                            8: 170,137
                          29,640:
                                  34,572: 121,511: 151,251: 170,129:
July 1'22 - Dec. 31'22
                          18,736: 132,172: 135,343: 204,079: 713,386:
                                                                        1,823: 715,209
                                                                        1,831:5173,5+7
4pr. 1'18 - Dec. 31'22 :2069,017:3428,530:,760,331:3829,368:J171,716:
                          30,648: 162,855: 202,513: 233,161: 144,237:106,776: 251,013
Jan. 1 - Dec. 31'23
                           4,300: 8,628: 14,311: 18,611: 15,916:
                                                                       7,309: 23,225
Jan. 1 - June 50'23
July 1'22 - June 30'23:
                          23,036: 140,800: 199,654: 222,690: 729,302:
                          26, 348: 154, 207: 188, 202: 214, 550: 128, 321: 99, 467: 227, 788
July 1'23 - Dec. 31'23:
Lpr. 1'18 - Dec. 31'23:2099,665:3591,385:3962,864:6062,529:5315,953:108,607:5424,560
                          1,6)4: 9,284: 11,209: 12,863: 7,997: 12,698:
Jan. 1 - June 30'24
                          28,002: 165,491: 199,411: 207,413: 136,318: 112,165 248,483
July 1'23 - June 30'24:
Apr. 1'18 - June 30'24 :2101,319:5600,669:3974,073:6075,392:5323,950:121,505:5445,255
```

Table 12. Data showing, by calendar years, half years, fiscal years, and entire campaign, the numbers of properties on which sprouting barberry bushes were found and removed in the barberry eradication campaign from April 1, 1918, to June 30, 1924

```
: Number of properties on which: Total number of properties
                         :sprcuting bushes were found :cleared of sprouting bushes
                                : In country : Total :
        Period
                         :cities:Having :
                                                  :
                                                      in
                            and : escaped: Total : cities : Dug
                                                                  :Treated :
                           towns: bushes:
                                                  : and
                                                  :country:
April 1 - June 30'18
                         :Data for this period are included with the July 1-Dec. 31'18
                                                                               data.
July 1 - Dec. 31'18
                              41:
                                                                                  42
                                                        42:
                                                                42:
                                         0:
                                                1:
                                                                           0:
Apr. 1'18 - Dec. 31'18 :
                              41:
                                                                                 42
                                         0:
                                                        42:
                                                                42:
                                                                           0:
                                                1:
Jan. 1 - Dec. 31'19
                              714:
                                                                                967
                                      199:
                                              25 3:
                                                       967:
                                                               967:
                                                                           0:
Jan. 1 - June 30'19
                              124:
                                         1:
                                                               125:
                                                                           0:
                                                                                125
                                                1:
                                                       125:
July 1'18 - June 30'19:
                             165:
                                                2:
                                                                                167
                                         1:
                                                       167:
                                                               167:
                                                                           0:
July 1'19 - Dec. 31'19:
                             590:
                                     198:
                                              252:
                                                       842:
                                                               842:
                                                                           0:
                                                                                842
Apr. 1'18 - Dec. 31'19:
                              755:
                                      199:
                                              254:
                                                                               1009
                                                     1,009:
                                                              1009:
                                                                           0:
Jan. 1 - Dec. 31'20
                             947:
                                                             1198:
                                        75:
                                              251:
                                                     1,198:
                                                                           0:
                                                                               1198
Jan. 1 - June 30'20
                                               52:
                             132:
                                        9:
                                                       184:
                                                              184:
                                                                                134
                                                                           0:
July 1'19 - June 30'20 :
                              722:
                                      207:
                                              304:
                                                     1.026:
                                                             1026:
                                                                           0:
                                                                               1026
July 1'20 - Dec. 31'20:
                             815:
                                       67:
                                                                               1014
                                              199:
                                                     1,014:
                                                              1014:
                                                                           0:
Apr. 1'18 - Dec. 31'20 :
                            1702:
                                      275:
                                                                               2207
                                              505:
                                                     2,207:
                                                              2207:
                                                                           0:
Jan. 1 - Dec. 31'21
                             675:
                                      134:
                                                       989:
                                                              989:
                                                                                989
                                              314:
                                                                           0:
Jan. 1 - June 30'21
                             113:
                                        30:
                                                       194:
                                                              194:
                                                                                194
                                               81:
                                                                           0:
                             928:
July 1'20 - June 30'21:
                                       97:
                                              280:
                                                     1,208:
                                                              1208:
                                                                           0:
                                                                               1203
July 1'21 - Dec. 31'21 :
                             562:
                                      104:
                                              233:
                                                       795:
                                                              795:
                                                                                795
                                                                           0:
Apr. 1'18 - Dec. 31'21 :
                            2377:
                                      409:
                                              819:
                                                              3196:
                                                                           0:
                                                                                3196
                                                     3,196:
Jan. 1 - Dec. 31'22
                            1144:
                                      341:
                                             1055:
                                                     2,200:
                                                             2181:
                                                                           0:
                                                                               2181
Jan. 1 - June 30'22
                                                                                606
                              323:
                                       80:
                                              283:
                                                       606:
                                                               606:
                                                                           0:
July 1'21 - June 30'22
                             885:
                                      184:
                                              516:
                                                     1,401:
                                                              1401:
                                                                           0:
                                                                               1401
July 1'22- Dec. 31'22
                             821:
                                      261:
                                                                               1575
                                              773:
                                                     1,594:
                                                             1575:
                                                                           0:
Apr. 1'18 - Dec. 31'22 :*
                                                             5567:
                            36 34:
                                                                               5567
                                      750:
                                             1952:
                                                     5,586:
                                                                          0:
                                                                      1623:
Jan. 1 - Dec. 31'23
                                                                               3374
                            1305:
                                      850:
                                             2074:
                                                     3,379:
                                                              1751:
Jan. 1 - June 30'23
                                                                                630
                                                       634:
                                                                        314:
                                      164:
                                              411:
                             223:
                                                              316:
July 1'22 - June 30'23:
                                      425:
                                                                               2205
                            1044:
                                             1184:
                                                     2,228:
                                                              1891:
                                                                        314:
                                                                               2744
July 1'23- Dec. 31'23:
                                             1663:
                                      686:
                                                     2,745:
                                                             1435:
                                                                      1309:
                            1082:
Apr. 1'18 - Dec. 31'23:
                            4939:
                                             4026:
                                                                      1623:
                                                                               8941
                                     1600:
                                                     8,965:
                                                              7318:
Jan. 1 - June 30'24
                                                                       116:
                                                                                235
                                              162:
                                                       234:
                               72:
                                       97:
                                                              119:
July 1'23 - June 30'24:
                                                                               2979
                                                              1554:
                                                                      1425:
                            1154:
                                             1825:
                                      783:
                                                      2979:
                                                                               9176
Apr. 1'18 - June 30'24:
                                             4188:
                                                                      1739:
                            5011:
                                     1697:
                                                      9199;
                                                              7437:
```

^{*} The following North Dakota property data for 1918 to 1922, inclusive, are included in this period.

113: 0: 77: 190: 190: 0: 190

Table 13. Data showing, by calendar years, half years, fiscal years and entire campaign, the rumbers of sprouting barberry bushes found and destroyed in the barberry eradication campaign from April 1, 1918, to June 30, 1924

```
: Number of sprouting bushes found Number of sprouting bushes
                                                                   destroyed
                       : In : In country
                       :cities:___:
                       : and : Escaped: Total : Total : Dug
                                                              :Treated:
     Period
                       :towns :
                       :Data for this period are included with the July 1 - Dec. 31,
April 1 - June 30'18
                                                                        '18 data.
                                                                           1996
                                             4:
                                                    1996:
                                                           1996:
                                                                      0:
                       : 1992:
                                     0:
July 1 - Dec. 31'18
                                                                           1996
                                            14:
                                                   1995: 1996:
                                                                      0:
Apr. 1'18 - Dec. 31'18: 1992:
                                   0:
                                                                          17874
                       :13 780:
                                  3261:
                                                   17874: 17874:
                                                                      0:
                                           4094:
Jan. 1 - Dec. 31'19
                                                                          3263
                          2563:
                                                    3263:
                                                          3263:
                                                                      0:
                                           700:
Jan. 1 - June 30'19
                                   700:
                                                                      0:
                                                                           5259
                         4555:
                                                    5259: 5259:
                                           704:
                                   700:
July 1'18 - June 30'19 :
                                                                          14611
                                                   14611: 14611:
                                                                      0:
                                           3394:
July 1'19 - Dec. 31'19 : 11217:
                                  2561:
                                                                      0:
                                                                          19870
                                  3261:
                                          4098:
                                                   19870: 19870:
Apr. 1'18 - Dec. 31'19: 15772:
                                                                          33148
                                  4111:
                                                   33143: 33148:
                                                                      0:
                                         18107:
Jan. 1 - Dec. 31'20
                       : 15041:
                                          5144:
                                                   11049: 11049;
                                                                      0:
                                                                          11049
Jan. 1 - June 30'20
                                   357:
                       : 5905:
                                                                           25660
                                                                      0:
                                          8538:
                                                   25660: 25660:
July 1'19 - June: 30'20 : 17122:
                                   2918:
                                                                      0:
                                                                          22099
                                                   22099: 22099:
July 1'20 - Dec. 31'20 :
                         9136:
                                  3754:
                                          12963:
                                                                          53018
                                          22205:-
                                                   53018: 53018:
                                                                      0:
Apr. 1'18 - Dec. 31'20 : 30813:
                                  7372:
                                                                          27697
                                                   27697: 27697:
                                                                      0:
                      : 12047:
                                   7793:
                                          15650:
Jan. 1 - Dec. 31'21
                                                    6029: 6029:
                                                                      0:
                                                                           6029
Jan. 1 - June 30'21
                      : 1615:
                                          4-14:
                                   335:
                                                                           28128
                                                                      0:
July 1'20 - June 30'21 : 10751:
                                                   23123: 28128:
                                   4587:
                                          17577:
                                                                          21668
                                                   21668: 21668:
                                                                      0:
                                  6960:
                                          11236:
July 1'21 - Dec. 31'21; 10432:
                                          37855:
                                                                          80715
                                                                      0:
Apr. 1'18 - Dec. 31'21 : 42860:
                                 15165:
                                                   80715: 30715:
                                                                           63883
                                  25965:
                                          44737:
                                                   64352: 63885:
                                                                      0:
                    : 19615:
Jan. 1 - Dec. 31'22
                                                   9618: 9618:
                                                                      0:
                                                                           9618
                                  3644:
                                          8555:
Jan. 1 - June 30'22
                     : 1063:
                                                                           31286
                                                   31286:
                                                                      0:
July 1'21 - June 30'22 : 11495:
                                  10604:
                                          19791:
                                                                          54265
                                          35182:
                                                   54734: 54265
                                                                      9:
July 1'22 - Dec. 31'22 : 18552:
                                  22321:
                                                                      U: 144598
                                                  145067:144596:
                                          82592:
mpr. 1'16 - Dec. 51'≥2:: 62475:
                                  +11 )0:
                                                  106700: 13176: 92969 : 106145
                     : 6653:
Jan. 1 - Dec. 31'23
                                  78703: 100047:
                                                                  8036::
                                                                           11018
                     : 1205:
                                                   11116: 2932:
Jan. 1 - June 30'23
                                  2653:
                                          9911:
                                                                  3036::
                                                                           65283
                                                   65850: 57197:
July 1'22 - June 30'23: 19757:
                                  24974:
                                          46093:
                                                   95584: 10244: 84883:
                                                                           95127
July 1'23 - Dec. 31'23: 5448:
                                  76050:
                                          901 36:
                                                  251767:157774: 92969::
Apr. 1'18 - Dec. 51'23 : 69128: 119833: 182639:
                                                                          250743
                                                                            2445
                                                            696:
                                                                  1749::
Jan. 1 - June 30'24 : 725:
                                                    2431:
                                  1108:
                                          1756:
                                                  98065: 10940: 86632:
                                                                           97572
July 1'23 - June 30'24: 6173:
                                  77158:
                                          91892:
                                                  254248:158470: 94718 : 253188
Apr. 1'18 - June 30'24 : 69853: 120941: 184395:
```

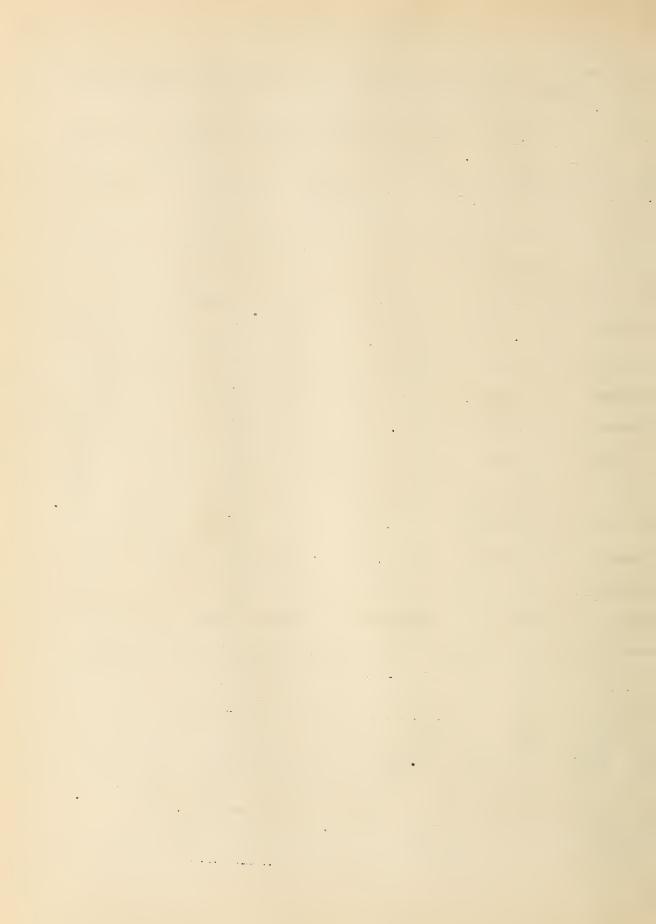
Table 14. Data showing, by calendar years, half years, fiscal years, and entire campaign, the numbers of barberry seedlings found and destroyed on original survey and resurvey in the barberry eradication campaign from April 1, 1918, to June 30, 1924

					···		
•	:Number of s		:	N.	umber of	seedli	ings
		yed on or	iginal :Fo		estroyed	on res	survey
Tobacción.	:on ori-:	survey		re-:	:	:	
Period	ginal : Dug	:Treated:	Total :su	rvey :	Dug :Tre	eated:	Total
	:survey:	:	1			:	w
						=	
April 1 - June 30'18	8:Data for this	period ar	e included	with th	he July 1	Dec.	31'18
	A Later Company		,			data.	
July 1-Dec. 31'18	: 500: 500): 0:	500:	0:	0:	0:	0
Apr. 1'18-Dec. 31'18): O:	500:	· . 0:	0:	0:	Ο.
Jan. 1-Dec. 31'19	: 3500: 3500	0:	3500:	0:	0:	0:	ס
Jan. 1-June 30:19	: 700: 700): O:	700:	0:	0:	0:	Ď,
July 1'18-June 30'19			1200:	0:	0:	0:	0
July 1'19-Dec. 31'19): O:	2800:	0:	0:	0:	Ō
Apr. 1'18-Dec. 31'19	9: 4000: 4000		4000:	0:	0:	0:	. 0
Jan. 1-Doc. 31'20	: 1000: 1000		1000:	500:	500:	. 0:	500
Jan. 1-June 30'20	: 200: 200		200:	0:	0:	0:	0
July 1'19-June 30'20	0: 3000: 3000		3000:	0:	0:	0:	. 0.
July 1'20-Dec. 31'20	0: 800: 800		800:	500:	500:	0:	500
Apr. 1'18-Dec. 31'20			5000:	500:	500:	0:	500
Jan. 1-Dec. 31'21	: 13428: 13428		13428:	5129:	5129:	0:	5129
Jan. 1-June 30'21	: 6614: 6614		6614:	5129:	5129:	0:	5129
July 1'20-June 30'2		, -	7414:	5629:	5629:	0:	5629
July 1'21-Dec. 31'2			6814:	0:	0:	0:	0
Apr. 1'18-Dec. 31'2			18428:	5629:	5629:	0:	5629
Jan. 1-Dec. 31'22	: 16901: 16901			52832: F		0:	52832
Jan. 1-June 30'22	: 3160: 3160				20436:	0:	20436
July 1'21-June 30'22				20436: 2		0:	20436
July 1'22-Dec. 31'22				32396: <u>3</u>		0:	32396
Apr. 1'18-Dec. 31'22				58461: 5		0:	58461
Jan. 1-Dec. 31'23			722538:19	38143:63	315 7 3:125		
Jan. 1-June 30'22	: 7855: 1128	: 1721:	2849:	7736:		1938:	7 736
July 1'22-June 30'2				40132:		1988:	40132
July 1'23-Dec. 31'2			719689:19				
Apr.1'18- Dec. 31'2	3:1762767:198703	.1559164.1	757867:190	06604.60	20034:125	657Ö: 1	946604
Jan. 1'24-June 30'21	4: 6954: 2781	: 4173:	6954:	59153: 2		8657:	59153
July 1'23-June 30'2							
Apr.1 '18-June 30'2	4.1769721:201484	. 156 3337.1	764821 - 201	55757.71	10530.129	5007.2	005757
11p1:11 10 0 and 00 2	1.1107121.201104	• +) •))) • •	104021.20	77171-13	10770-127	7561.6	וכוכטט

To June 30, 1924, a grand total of 3,825,478 seedlings were found on both original survey and resurvey. Of these, 912,014 were destroyed by digging, and 2,858,564 destroyed by chemical treatment, making a total of 3,770,578 seedlings destroyed.

Table 15. Data, by States, showing amounts of chemicals used in the barberry eradication campaign from April 1, 1918, to June 30, 1924

State	: Salt : (Tons)		Sodium Arsonite (Gallons)	:	Kerosene:	Drip Oil	
		<u>:</u>	(Gallons)	:	(Gallons):	(Gallons)	
Colorado	: 2.900	:	0	:	0:	0	
Illinois	:189.906	:	50.00	:	0:	0	
Indiana	: 23.531	:	0	:	0:	0	
Iowa	: 76.985	:	0	:	0:	158.000	
Michigan	: 22.762	:	304.90	:	0 :	0	
Minnesota	: 26.886	:	23.25	:	0:	0	
Montana	: 1.950	:	Ö	:	0:	Ó	
Nebraska	: 19.857	:	0	:	0:	0	
N. Dakota	: 12.506	:	7.0	:	0:	0	
Ohic			46.37	:	311! :	0	
S. Dakota	: 26.670	:	O	:	0:	0	
Wisconsin	:119.955	:	598.00	:	0:	. 375	
yoming .	: 0.100	:	0 :	:	0:	ð	
Total	:534.395	:	1029.52 :	:	3114 :	158.375	
	:	:			:		



CEREAL COURIER

Official Wesselger of the Office of Cereal investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FCR PUBLICATION)

Vcl. 16
August 11, 1924
Personnel (Aug. 1-10) and Field Station (July 16-31) Issue

PEPSONNEL ITEMS

H. Howard Biggar, formerly connected with the Office of Cereal Investigations, now Farm Editor of the Daily Drovers Journal-Stockman, Omaha, Nebr., writes on August 7, after a four-day trip in several northeastern counties of Nebraska, that the wheat crop as a whole is excellent; yields probably will be 36 bushels or more to the acre. Onts look very well. Corn is progressing favorably. There has not been too much rain, except in certain portions of the State, and the crop probably is not more than a week late. There is plenty of moisture in the soil. Nebraska farmers are optimistic.

A. C. Dillman, agreements in charge of flex investigations, writes from Mandan, N. Dak., on August 1 that he has never seen the general flex situation so feverable; it is probable that the "Condition of the Crop" has improved since July 1. A representative of the American Linseed Company, who visited Landan on July 31, having traveled by automobile for the past month through Minnesota, North Dakota, and eastern Montana, reported that the condition of the flax crop is excellent.

M. N. Pope, agrenomist in barley investigations, returned to Washington August 9, after spending six weeks in the study and harvest of barley varieties in the cooperative barley nurseries at Aberdeen, Idaho, Farga, N. Dak., St. Paul, Minn., Ames, Idwa, and Bozeman, Mont.

T. R. Stonton, agronomist in charge of cat investigations, left Washington August 6 for State College, Pa., to discuss cat problems with officials of the Pennsylvania agricultural Experiment Station. At the Cornell University Agricultural Experiment Station, Ithaca, N. Y., he will study the cooperative experiments with cats and probably will accompany some of the State officials on an inspection trip in the northern counties to study the newly developed out varieties that are now being grown under actual farm conditions.

Mr. Stanton returned to Washington on August 2 from a two-month's trip in the West. He spent the period from July 3 to 9, inclusive, at the Aberdeen Substation, Aberdeen, Idaho in recording notes on the cooperative oat-breeding and identification nurseries and in making a number of myorids. At Ames, Iowa, from July 14 to 23, inclusive, he recorded data and assisted in gathering the harvest in the cooperative identification and rod-row breeding nurseries.

Mr. Stanton reports the condition of crops in the Dakotas and Minnescta as being excellent. Some promising fields of oats and wheat were seen in the vicinity of Brockings, Huron, and Redfield, S. Dak. Not far from the latter place he was surprised to note a large number of fields of barley. In the acreage devoted to small grains wheat was first, barley second, and oats third.

In North Dakota wheat and oats generally were promising. At the Northern Great Plains Field Station, Mandan, N. Dak., the crops were the best ever seen at that Station. Excellent conditions also were noted at Dickinson and Fargo; at the latter place some stem rust was noted in the varieties of wheat. At University Farm, St. Paul, Minn., oats were considerably affected by drought and were ripening prematurely. Along the line of the Chicago and Great Western from Minneapolis, Minn., to Marshalltown, Iowa, the oat harvest was just getting well under way, the crop apparently being in excellent condition. Corn was still very tackward, however, and many fields were exceedingly weedy. Undoubtedly many silos will be built this fall in anticipation of handling more economically that portion of the corn crop which even under the most favorable conditions can not fully mature.

D. E. Stephens, superintendent of the Sherman County Branch Station, More, Oreg., writes on August 5 concerning conditions on the high desert between Bend and Burns in Oregon. Very little improvement could be seen in this region since a trip made ten years before with Dr. C. R. Ball. The roads were just as rough, if not rougher, and the country was as bare and desolate as before. Evidently the population had not increased during this period of years.

Mr. Stephens visited the Harney County Branch Station at Burns, Oreg., where, from 1911 to 1920, dry-land grain experiments were conducted cooperatively by the Office of Cereal Investigations and the Oregon Agricultural Experiment Station. Since July 1, 1920, the Station has been maintained solely from State funds. About 50 or 60 acres are now being devoted to experiments under irrigation; apparently there is sufficient water in the Station well for this purpose. The irrigated crops look especially fine this year. The dry-land experiments probably have been conducted sufficiently long to have demonstrated the futility of having farmers attempt to raise crops in the Harney Valley without irrigation.

VISITORS

Dr. Oscar Rabbethge, a breeder of sugar beet seed in Germany, who is inte 'also in the methods of improving wheat and other cereals, was an Office visitor August 6. He will visit various parts of the United States in order to study what has been accomplished in plant breeding.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Associations between Numbers of Kernel Rows, Productiveness, and Deleterious Characters in Corn, by <u>C. H. Kyle</u>, and <u>Hugo F. Stoneberg</u>, was submitted August 6 for publication in the series of Departmental bulletins.

Galley proof of the article, entitled "The Genetic Relation between Triticum dicoccum dicoccoides and a Similar Morphological Type Produced Synthetically," by H. H. Love and W. T. Craig, for publication in the Journal of Agricultural Research, was read August 5.

Page proof of article, entitled "Bacterial Blight of Rye," by <u>C. S. Reddy</u>, <u>James Godkin</u> and <u>A. G. Johnson</u>, for publication in the Journal of Agricultural Research, was read August 6.

The article, entitled "Notes on Greenhouse Culture Methods Used in Rust Investigations," by E. B. Mains, appears in the Proceedings of the Indiana Academy of Sciences, v. 33 (1923), p. 241-257, 5 fig. 1924. (The investigations upon which this paper is based were conducted cooperatively by the Purdue University Agricultural Experiment Station and the Office of Cereal Investigations.)

Oregon Agricultural Experiment Station Bulletin 204, entitled "Spring Crops for Eastern Oregon," by <u>David E. Stephens</u>, <u>Robert Withycombe</u>, and <u>Obil Shattuck</u>, has just been received, bearing date of May, 1924. (The Sherman County Branch Station at More, Oreg., of which the senior author is superintendent, is maintained cooperatively by the Oregon Agricultural Experiment Station and the Office of Cereal Investigations. The Harney County Branch Station, Burns, Oreg., of which Mr. Shattuck is superintendent, also was cooperatively maintained by these same agencies from 1911 to 1920. Since July 1, 1920, the Station has been maintained solely from State funds.

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athons (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (July 29)
There has been a prolonged drought and rain is badly needed by the growing crops. Showers in the latter part of June and early in July caused severe lodging of the later maturing winter-oat varieties, particularly those of the Winter Turf type. Yields of these varieties probably were considerably reduced owing to loss in harvesting and threshing.

The dry weather has been very favorable for threshing operations, and it is expected that before August 1 all plat yields will have been recorded. Because of the increased number of rod rows this season, the time required to complete threshing will extend to approximately August 10.

The yield data obtained from the winter-barley varieties and selections grown in duplicate 40th-acre plats are given below:

Yield of Winter Barley Varioties in Duplicate 40th-Acre Plats
Arlington Experiment Farm, 1924.

<u>Variety</u>	C. I. <u>No</u> .	Yield (bu. per a.)	Check Yield (bû. per a.)	Gain or loss from checks (bu.)
Tenkau Tennessee Winter (Sel.6) Pidor Wisconsin Winter Han River Orel Alaska Tennessee Winter (Sel.6) Do (Sel.6) Do (Sel.6) Do (Sel.6) Do (Sel.6) Do (Sel.6) Do (Sel.6) Tennessee Winter Do (Sel.6) Tennessee Winter Do (Sel.6) Tennessee Winter Do (Sel.6) Tennessee Winter (Sel.6) Nakano Wase Do Tennessee Winter (Sel.6) Do (Sel.6) Tennessee Winter (Sel.6)	901 2167 2163 351 534 12) 3534 12) 3534 12) 3545 277 2746 61) 3545 28) 3539 24) 3536 52) 3543 3543 257 27) 257 25) 3537 754 2166 45) 3540 47) 3542 (Se1.)	508.2930096834556383816478891 45.55.63838222222217.1 49.6	41.4 52.8 544.8 544.8 51.5 52.4 41.4 51.4 51.5 52.4 51.5 51.6 51.6 51.6 51.6 51.6 51.6 51.6	+9.4 +5.4 +1.1 +0.5 +0.2 -2.6 -3.1 -6.1 -8.9 -10.4 -11.7 -14.1 -23.7 -25.7 -25.7 -25.7 -25.7 -38.6

The check yield used for comparison with the yield of the variety represents the average of the grain yelld of the four check plats nearest the variety. The major factor in influencing the barley yield this season was the drowning out of the plants in the lower portions of the plats. All seed used in the varietal test was treated with the merina preparation known as Semesan, and an excellent control of both barley smuts resulted.

Selection No. 66, a typical winter barley selected by Dr. Harlan, has proved promising in the 3-year plat test. It is several days earlier in ripening than Tennessee Winter but appears to be fully as winter hardy.

The effect of continuous screening for large and small wheat seed showed, in the third year of the experiment, no significant difference sc far as grain yield is concerned. The yields of the 40th-acre plats are given in the following table:

Plat Nos.	Yield in bu. per <u>Large seed</u>	acre from Small seed
1 and 2	48.4	47.2
3 and 4	35.5	37.9
5 and 6	40.6	39.1
7 and 8	34.3	34.0
Average,-	39-7	39.6

The small seed was sown at the rate of 4.5 pecks to the acre and thelarge seed at the rate of 6 pecks. Data taken on fall stand showed, however, more plants to the foot of drill row in the plats sown with small seed. Screening has produced significant effects upon the foreign plant types present in the plats from the two kinds of seed, particularly the occurrence of wheat-rye hybrids.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H.

Love) (August 1)

The weather in July was very favorable for small grains. Wheat matured late, but there was a very good crop and the comparative tests shown be very reliable. There has been sufficient rain, and the cats have made a very good crop, although they were sown late. Some lodging was caused by rain the latter part of July; while some of the varieties may straighten up, part of those in our rod-row series particularly the advanced test, will not recover. The wheat harvest was finished August 1 and the harvesting of the barley was begun. Out harvest will not begin until at least the 11th of August.

Dr. R. S. Kirby writes from Pennsylvania that he has inspected something over 20 fields of Forward wheat and has found them free from loose smut. This is causing considerable interest in Forward wheat in certain sections of the State. About half of the fields of grain which are being inspected by us, in cooperation with the New York Seed Improvement Cooperative Association, Inc., have been completed, and the remainder of the oats and barley will be finished within a few days. The fields of Forward wheat and Cornellian oats are looking very well in most sections of the State. The same is true of the Alpha barley.

The harvesting of the spring wheat and out hybrids will be begun the weak of August 4. Considerable of the spring wheat deals with the inheritance of dwarf characteristics.

On August 1 many of the members of the New York Seed Improvement Cooperative Association, Inc., visited the oat and barley plats and consulted with those in charge regarding sources of seed, new strains, etc.

We have been fortunate in obtaining some new equipment for the small-grain work, namely, a drill and binder; we are overhauling our threshing machine.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (August 5)
The extremely hot and dry weather of July has been the most trying ever
experienced at the station. The first week was cool, the maximum temperature not being 90° F before the 6th. After that date the temperature was
over 90° F, each day and reached 100° F, on the 25th. The minimum temperature was lower than usual for July, the average for the month being 71° F.

The precipitation for the month was only 1.42 inches. This is the lowest ever recorded for the month of July during the 15 years that records have been kept at the station; the average precipitation for the past 14 years for the month of July is 6.89 inches. The precipitation for the five months previous, was far below normal, resulting in a shortage of water for irrigation purposes. Unless heavy rains occur early in August the rice crop will be greatly damaged, for since the first part of July most of the irrigation plants have been pumping water containing various quantities of salt. Most plants have closed down, as the quantity of salt has reached about 100 grains per gallon.

The deep wells are still holding out but the pumps in many of these have had to be repaired in order to obtain water. In the pump on the station it was found necessary to add 17 feet to the section pipe and place a "foot valve" in the upper end of this new section.

Almost all of the pla's were dry before the pump was repaired; however, there was no injury as most of the rice is young, and the loss of water at its stage of growth causes little or no damage. The old rice was not affected as the water was kept as deep as possible on it in anticipation of what might happen. By the end of the month all of the plats had been supplied with fresh water.

The rice plats are looking well, but in the nursery the plants seem to be affected by the high temperature of the irrigation water. The surface of the water is more exposed in the nursery, because of the wide spacing of the rows, than in the plats that are seeded in close drills.

Aquatic weeds made a rapid growth in July, weather conditions being especially favorable for them. The weeds are particularly noticeable in the fertilizerrplats to which actd phosphate has been applied.

Stybeans are growing nicely and show little bad effect from the drought. This is especially true of Barchet and Biloxi. Otootan does not seem so resistant to dry weather and heat as the other two varieties.

Last week it was surprising to find in fields of Biloxi soybeans and cotton growing side by side, that the soybeans were in a healthy, vigorous condition, while the cotton plainly showed ill effects from the excessively dry weather.

It was believed at the time, however, that much of the vegetation was not all rice. In driving over the Parish last week, this supposition was largely confirmed, for field after field was seen badly infested with barn-yard grass, as well as red rice and other weeds. This is especially true of early rice; the later plantings are fairly clean. It has been very difficult this spring to destroy weeds because of the fact that there was so little rain at seeding time that weed seeds did not germinate readily and most of them came up with the crop.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg). No report.

WISSOURI

Agricultural Experiment Station, Columbia (L. J. St dler) No report.

TENNESSEE

Agricultural Experiment Station, Mnoxville (L. S. Mayer) (July 31)
Hand pollination was begun July 21 on the earlier strains of raise and
is rapidly approaching the peak, the field generally coming into tassel, with
the exception of the later plantings and replantings.

The weather this menth has been very favorable for the growth of corn; very high temperatures have been common.

A severe wind and rain storm on the 24th lodged most of the corn in the experiment plats and necessitated considerable straightening up.

AWOI

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigations of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, M. A. Smith (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Fradication, G. C. Curran (August 5)) In In June the original servey was begun in adams, Cook, and Mercer counties. On July 1 field men started the original survey of Fulton, Knox, Henderson, Marshall, McDonough, Peoria, Tazewell, Warren, and Woodford counties.

One of the outstanding features of the campaign this year is the publicity that the scouts have supplied to the press in their respective counties. The newspapers are egger for such material and the field men make their stories as interesting as possible from a local standpoint.

About 42,000 circular letters were mailed July 1 to all the rural box holders in the counties being surveyed. These letters have been of unusual value, because farmers have been informed in advance that a search for the common barberry shrub was being made. Those having information in regard to plantings of barberry have given it to the scouts as soon as they called.

In Marshall County a large number of escaped bushes have been found. It has been necessary to scout the bluffs along the Illinois River on foot. Scouts in this county are taking every precaution to locate and destroy every bush.

Three carloads of salt were delivered in July; one of 30 tons was shipped to Galesburg, another of 30 tons to Peoria, and the third of 20 tons, was delivered to Gurnee. Part of the salt was reshipped to near-by points from Galesburg and Peoria.

In Cook County the field men have experienced unusual difficulty in getting people to remove barbetry bushes.

It may be necessary to ask the State Department of Agriculture to take some form of legal action in order to insure the removal of a number of the plantings.

Excellent progress has been made in the resurvey of Kane County. Mear Hampshire, in Kane County, a field of oats near infected barberries was severely rusted. Redtop was also beavily rusted. A spread-of-rust map is being made of this barberry planting.

Field men of the State Department of Agriculture have completed a resurvey of Kankakee and Iroquois counties. They were cove and in original survey by the State Department of Agriculture in the summer of 1923.

In July, 1,390 bushes were located and destroyed on 249 city properties, while 3,008 bushes were found on 337 properties in the country, of which only 374 were escaped bushes.

INDIANA

Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, E. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry eradication, W. E. Leer) No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agrácultural College, East Lansing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, C. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L.W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (August 1)
Growing conditions during the last half of July were rather favorable;
however, if it does not rain soon crops will be injured by drought. Sorghums and broomcorn have hade rapid growth, but another good 1 in is needed to mature them.

Most of the sorghums and broomcorn have been given the final cultivation, and the earlier sorghums and those in the earlier plats in the date-of-seeding experiment are heading rapidly.

At present stands are being counted and heads are being bagged.

Maximum temperature for the last half of July, 101° on the 29th; minimum 58° on the 25th; precipitation, 0.75 of an inch; total for the month, 3.07 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (August 2) (Report for last half of July)

The threshing of nursery oats and barley was completed on July 30, and threshing of the winter wheat and barley nurseries from Colby was completed on August 1. The land to be used for the winter-wheat nursery this fall has been plowed and disked. Nearly 1,500 plant selections of the Fh haterial of the Kanred X Hard Tederation crosses have been made, but about half of these will be discarded on the basis of notes on grain plumpness and quality.

Dr. H. B. Eumphrey, pathologist in charge of cereal disease investigations, was a Station visitor on July 30 and 31.

Maximum terperature, 106 ° July 16; Minimum, 45 ° July 3; Measurable precipitation on nine days totaling 3.75 inches.

One to two inches of rain fell in all parts of Mansas except in the northwest and southwest sections during the week ending July 23. Temperatures of 100° and higher were recorded on the 15th in nearly all parts of the State. Corn was reported to be in good to excellent condition over the greater part of the eastern two-thirds of the State. Plowing for wheat was under way in a number of places. Temperatures of 100° and higher were again reported from all sections except the eastern one-third on July 23. Corn was reported to be in good to excellent condition in all parts of the State except in extreme western counties where the drought still continued.

The yields of barkey varieties tested by Prof. H. H. Laude in his cooperative experiments with farmers in western Kansas were as follows:

Club Mariout 20.90 bushels 15.26 "
Stavropol (a strain from the Hays station very similar to Coast) 17.57 "

Yields of Cat Varieties in Cooperative Tests.

The results of the experiments in 1924 are shown in the following table giving yields from 35 cooperative tests:

<u>Variety.</u>	Average Yield (Bu. per acre)
Kanota	39.3
Burt	36.4
Webraska No. 21	34.5
Albion (Iowa No. 103)	32.2
Red Texas	23.1

Kanota has held this place for six consecutive years, having been tested on farms 150 times in comparison with Red Texas, the variety most commonly grown in Kansas.

Burt matures as early or possibly earlier than Kanota and has made a good record throughout a period of six years, although in no season has it exceeded Kanota in yield.

Yields of Theat Varieties in Cooperative Tests.

The following table gives the average yields of varieties tested in the hard-wheat belt which includes all of the State except 26 eastern counties.

Variety.	<u>Yield</u> (<u>Bu. per acre</u>)
Kanred	27.6
Blackhull	26.6
Turkey	25.0
Kharkof	25.5
Fulcaster	24.3
Harvest Queen	22.6
Currell	20.3
Fultz	20.2
Pocle	18.9
	18.9

Table of average yields of wheat in cooperative tests in 26 eastern counties in Kansas, 1921:

<u>Variety</u> .	<u>Yield</u> (<u>Bu. per acre</u>)
Blackhull	23.5
Turkey	27.1
Kanred -	25.0
Harvest Queen	25.3
Fulcaster	24.8
Poole	5,1*0
Currell	23.5
Fultz	22.8
Red Sea	22.6

Blackhull has made a very consistent record in eastern Kansas for the last four years. In 1921 this variety yielded lower than Kanred in cooperative tests, but in the last three years Blackhull has outyielded Kanred in the eastern one-fourth of the State. Blackhull and Fulcaster have produced the same average yield, namely, 22.2 bushels in the last five years, during which 104 comparisons have been made in this section of the State.

Yields of Winter X Spring Wheat Crosses in Single Plats at the Agronomy Farm, Manhattan, Mans.

		C. I.			:Actual	:	Corrected
No.	: No. :	No.	: Cross		:yield	:	yield
60	4119		Marquis X Kanred	(A)	44.7		37.3
5 7	441		'T H	(B)	44.2		38.1
7.	2401	5146	Kenred (Average of	4 checks)	41.0		34.0
44	446		P1068 X Preston	(B)	40.5		32.1
42	445		P1068 X Preston	(B)	39.1		30.6
41	443		Marquis X Kanred	(B)	33.5		30.6
40	4142			(B)			
47	440		P1056 X Marquis		38.1		30. 7
41	440	6937	Kanred X Marquis	(A)	37.6		30.8
1	1		(Kenmarq)	1.5			
45	453		Kanred X. Marquis	(A)	37.0		29.1
59	448		Marquis X Hanred	(A)	37.0		30.0
55	450		Marquis X Kanred	(A)	36.7		31.5
51	457		P1066 X Marquis	(A)	36.1		31.0
39	439	6936	P1066 X Marquis	(E)	35 .7		28.9
			(Tenmerq)				
54	447		Marquis X Hanred	(A)	35.5		30.7
	458		PlC65 X Marquis	(A)	35.0		
52 46	454		Kanred X Marquis	(A)	53.8		30.3 26.4
49	455		II II	(A)	33.7		27.8
56	451		\$\$ \$T	(£)	33.7		23.1
50	456		P1066 X Marguis	(A)	32.0		26.5
58	444		P1068 X Preston	(B)	30.6		24.1
61	452						
01	772		Kanred H Marquis	(A)	29.8		21.9

A - Awnless

B - Bearded

Average yield of varieties of winter wheat grown in triplicate plats at the Agronomy Farm Manhattan, Kans., 1914.

(Reported by Prof. S. C. Salmon).

7	:	:		hels to the acre
Name :		C. I.:		: Corrected or
:	No:	No.:	yield	: calculated yield
Fultz * Improved Turkey Blackhull Pl068 Hard Winter Defiance Red Hussar Fl066 Kharkof (Hays, No.2) Harvest Queen Neb. No. 60 Crimean Turkey Kanred (Average of	2156 2382 343 2414 373 2519 2415 418 19 322 846 1664	6215 5592 6251 5880 6205 4843 5879 6636 6199 6250 6208 6472	36.8±1.6 36.0±4.7 36.0±4.7 35.0±4.3 34.9±0.9 34.7±1.6 34.5±0.5 34.5±2.0 34.3+3.7 33.7±4.2 33.0±4.7	36.1±6.0 56.9±1.7 37.5±2.9 35.2±1.1 35.1±3.8 53.0±3.4 75.3±2.8 75.3±3.4 75.2±6.3 76.4+3.1 76.4+3.1 76.4+3.1
8 checks) Fulcaster Kanred Sel. Altera Zimmerman Kanred Sel. Montana No.36 (Kharkof) Minturki Karmont Turkey P704 Neb. No. 6 Kharkof Berkeley Rock Iobred Awnless Sel.of Neb.23* Penn. 44;** Neb. 25*	2464	5116 6471 5797 6211 5549 6155 583-30 1558 6249 6206 5147	32.8±4.1 32.3±0.6 32.3±0.6 31.9±0.4 31.5±0.9 31.4±5.3 31.6±2.1 31.4±2.2 31.2±2.3 30.8±4.7 30.5±1.6 30.5±1.6 30.5±1.6 30.5±1.6 25.5±2.4 27.4±1.7 26.0±2.8 25.2±0.9	34.0 50.4±4.8 55.4±1.3 31.3±3.0 31.5±5.4 34.5±1.4 52.5±3.0 33.5±2.5 32.4±3.4 32.6±1.3 32.1±2.2 32.5±1.6 32.1±2.1 29.6±3.0 29.6±3.0 29.6±3.0 26.5±3.6

^{*}Soft red winter wheat.

Hays Branch Experiment Station, Hays (A. F. Swanson) (No report).

COLORADO

Akron Field Station, Akron (No report).

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (August 1). In July a resurvey was conducted in ten counties, and 338 sprouting bushes, 573 seedlings, and 14 new bushes were found. The greater number of the seedlings were found in the wild areas in Arapahoe and Fremont counties. Two new bushes were found in the city of Denver, eight in the escaped areas, and four on a rural property east of Fueblo, Colo., near the Arkansas River.

Most of the winter wheat in eastern Colorado escaped the rust. The late grain in this section is rusted. The early spring wheat escaped with just a uniform trace of rust. Susceptible wild grasses, especially those in low places, also showed evidence of stem rust.

From July 16 to 19, S. M. Dietz, pathologist in charge of crcwn rust investigations, and the writer, inspected fields of cats, wheat, and barley in Larimor, Weld, Boulder, and Jefferson counties. A trip also was made west of Denver in an area where Lepargyrea canadensis occurs

NEBRAGKA

North Platte Substation. North Platte (George F. Sprague) (July 30)
Threshing began on the rotation plats Tuesday, July 29. The following are the highest yields obtained so far this season: Winter wheat, 58.50 bushels per acre, and oats, 80.30 bushels per acre. Threshing of the varietal plats will start in a day or so.

Corn is suffering from drought. Mary fields are firing and some have been injured seriously.

The weather continues hot and dry, the following temperatures having been recorded: Maximum, 97 degrees July 17; minimum, 49 degrees, July 25.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report).

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (No report).

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel (No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayous) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (July 31)
Harvesting began July 28 with the early varieties of winter rye. Rosen rye and Gatami barley are being harvested today. Some winter rye in this vicinity is being harvested. Winter wheat and early varieties of spring wheat and oats are beginning to ripen. The general harvest will be nearly two weeks later than usual as the result of the cold, backward spring and cool weather early in the summer.

Varieties and strains of corn are beginning to tassel and the work of selfing corn was begun this week.

There is but very little rust present on the wheat varieties and the present dry weather is not favorable to the spread of this disease.

Crop prospects at this time are fairly good. Late crops would be greatly benefited by rain, but moisture conditions have been fairly good during most of the season. Corn has been the least promising of farm crops this season, but now it is much improved in appearance because of recent warm weather.

On a recent automobile trip through several counties of western North Dakota evidences were seen of greater diversified farming than in former years. Comparatively large acreages of the following craps were observed: Corn in Dunn County; flax in McLean County; rye in Ward County; sweet clover in Bottinear County; and alfalfa in McKenzie County. An increase in the number of dairy cows was noticed in most of the region traversed. Crop conditions were good and hay and pastures were in good condition.

The Substation was visited this week by M. A. McCall, T. R. Stanton, and D. G. Fletcher. The following visitors are expected tomorrow: Messrs. H. K. Hayes and O. S. Aamodt, St. Paul, Minn., L. R. Waldron, N. Dak., and J. Allen Clark, Washington, D. C.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (August 1) Temperatures have been moderately high and generally favorable for crop development during the last half of July. From July 16 to 22 daily showers were of great benefit to crops after the drought of the first half of the month. There has been very little precipitation the last week in July, and the soil is getting very dry again.

A careful search among the wheat plantings on the Station on July 19 indicated no trace of stem rust at that time. On July 21 occasional pustules were observed on nearly all susceptible varieties of wheat in the Station plantings and in fields of Marquis wheat within a radius of five miles. Since that time rust has developed very rapidly.

The development of rust was especially marked on July 31 just ten days after the initial infection was first observed, both in the Station plantings, and in fields in the reighborhood.

- J. G. Diamond, agricultural statistician for North Dakota, and O. W. Roberts of the Weather Pureau at Bismarck, visited the Station today to investigate crop conditions with especial attention to wheat rust.
- A. A. Bryan, agronomist in corn breeding, arrived July 18 to direct the work of hand pollinating corn. A. C. Dillman, agronomist in charge of flax investigations, arrived July 19.
- W. E. Brentzel, of Fargo, visited the Station July 23 to lock over the flax plantings.
- T. R. Stanton, agronomist in charge of oat investigations, visited the Station July 27 and 28.
- J. Allen Clark, agronomist in charge of western wheat investigations, arrived July 26 to make a study of his wheat plantings.

On July 31 there were a number of official visitors, namely, Dr. H. K. Hayes and C. A. Aamodt, from the University of Minnesota; L. R. Waldron, of the North Dakota Agricultural College, M. A. McCall, of the Office staff, and L. B. Gove, of the American Linseed Co.

Maximum temperature for the last half of July, 92° on July 28; minimum, 47° on July 16; precipitation 1.97 inches.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) August 1)

Dry weather is ripening the winter wheat rapidly; if it continues almost all of the winter wheat in the plats and nursery rows will be ready to harvest before the end of next week. Some of the earliest varieties of winter wheat in the nursery rows were harvested yesterday. A large number of nursery rows of winter wheat will be ready for harvest within two or three days. The earliest varieties of barley and oats are almost ready to harvest. The earliest varieties of spring wheat are beginning to turn brown.

Fred Berlund, foreman at the Substation for the last 11 or 12 years, recently resigned his position. Lewis Bremer, who has been a laborer at the Substation for over a year, has been appointed foreman.

The total precipitation recorded in July was 1.39 inches. Nearly one-half of this fell as one rain on July 22. The average precipitation for July is 1.97 inches. The maximum temperature recorded in July was 920 on the 28th, while the minimum temperature was 400 on the 29th.

The annual Farmers' Picnic was held on July 24. The attendance was estimated from 3,000 to 4,000. M. A. Brannon, Chancellor of the higher educational institutions of Montana, was the principal speaker.

M. A. McCall, of the Washington office, visited the Substation on July 28 and 29.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christ@pher) (No report).

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (July 19)

Harvesting of the barley nursery has begun. Conditions have been very favorable for barley growing this year and some good yields will be obtained.

M. N. Pope is here at the present time making physiological studies of barley.

Irrigation water has not been so short as predicted earlier in the season. The yield of crops in this section of the State will not be below normal.

T. R. Stanton was here a few days ago studying the oats grown in nursery rows and plats. He made a considerable number of crosses.

The winter and spring wheat nurseries are in excellent condition. A few winter wheat varieties will be ready to harvest within a leek.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report).

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (July 29)
Threshing on the Station began July 16. In some instances yields were
a little higher than expected through many were low. The crop season of 1924
has been one of the dryest ever experienced in eastern Oregon. The total
precipitation from September 1, 1923, to date has been only 7.7 inches. There
was almost no rainfall of benefit to growing crops during the three months of
April, May, and June; the total amount recorded for this period was 0.44 of
an inch.

On the best lard in Sherman County yields of winter wheat range from 20 to 30 bushels to the acre. On the shallow soils the crop is practically a failure. The following table gives the yields obtained in a series of tillage experiments on the Station:

Yield of Turkey winter wheat grown in the tillage experiments at Moro, Oreg., in 1924.

Plat		:Yield :			:Yield
No.	00220	-		Cultivation of fallow	v:(bu.per
		: acre :	:		: acre
	April Ploving			Check plats, April	
				plowing.	
481	Clean, packed	15.7	1;83	Clean	214.2
482	None	20.2	485	Do	23.7
484	Harrowed once	22.3	583	Do	24.3
485	Clean, crop not harrowed	23.0	583	Do	
486	Clean, crop harrowed				22.8
487		25.5	683	Do	21.3
489	Campbell packed, harrowed once		688	Do	22.5
	O.Y. G@11	27.2			
490	Clean, fall disked	22.7			
	Average,-	23.0		Average, -	23.1
_ ~ ~	May Plowing			June Plowing	
,					
581	Clean, packed	14.8	681	Clean, packed	13.8
582	None	17.0	682	Mone	17.7
584	Harrowed once	16.5	684	Harrowed once	18.2
585	Clean, crop not harrowed	26.3	685		10.2
586		_	009	Clean, crop not har-	70 7
	Clean, crop harrawed	25.7	CC	rcणed	19.8
587	Campbell packed, harrowed once		686	Clean, crcp harrowed	19.8
589	Do Do clean	26.7	687	Campbell packed, har-	
590	Clean, fall disked	23.0		rowed once	16.5
			689	Campbell packed, clean	
			690	Clean, fall disked	17.8
	-			,	- Link
	Average,-	20.9		Average, -	18.3

161* 261*Clean, packed 262*None 264*Harrowed once Clean, packed 7.1 162* None . 9.3 11.3

164* Harrowed once 14.8 165 Clean, crop not harrowed 9.8 265 Clean, crop not harrowed 166 Clean, crop harrowed 13.2 266 Clear, crop harrowed

9.4 167 Campbell packed, harrowed once 19.2 267 Campbell packed, harrow-169 Do Do clean 19.3 ed once 170

Clean, fall disked 20.3 269 Campbell packed, clean 270 Clean, fall disked 14.4 Average. -Average. -

13.0

13.0

20.3

22.7

21.5

14.2

*Sha	allow_soil _		
	Chec	ek Plats, Early	Spring Flowing
	Plat No.: (Cultivation of	Fallow : Yield :Bu. per a.
	163 [*] 168 _* 263	Clean Do Do	8.0 21.3 4.8

Do Average, -

263

^{*}Shallow soil

The following yields were obtained from the spring barley varietal trial. These barleys received no rain from time of planting until harvest.

Acre yields in bushels of spring barley varieties in triplicate plats at More, Creg., in 1924.

-						
	:	•	J	Series	:	
Rank	: Variety	:C.I. No.	: 7 :	2 :	3 :	Average
1	Melcy Sel. No. 3		28.3	30.ö	40.0	. 35.0
2	Melcy	1176	30.8	28.3	36.7	31.9
3	Coast	2301	29.2	34.2	30.8	31.4
4	Arequipa	1253	30.8	30.8	32.5	31.4
5	Flynn	1311	25.0	36.7	30.0	30.6
6	Success		28.3	32.5	30.0	30.3
6	Beldi	190	29.2	30.3	30.8	30.3
7	Peruvian	935	29.2	28.3	30.8	29.8
8	Peru	2302	27.5	35.8	25.3	29.7
9	Club Mariout	261	29 2	27.9	30.0	29.0
10	White Smyrna	653	27. 5	28.3	27.5	27.6
11	Odessa	527	26.7	22.5	33.3	27.5
12	Trebi	936	25.0	24.2	30.3	26.7
13	Hannchen	531	22.5	22.5	17.1	20.7
14	Himalaya	2293		22.5	22.5	20.3
	Cape Coast Hybrid		15-8 22.9* 26.3*			
	Meloy	1176	26.3			
	Beardless x Blue C	•	20.4*			

^{*}Adjacent plats removed from varietal trial.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (July 31)

The weather during July has been reasonably favorable for the growth of rice-and weed pests. A good deal of water grass is now showing on many commercial fields which appeared to be free of weeds earlier in the season.

Yesterday I made a trip by auto through parts of the rice sections of Butte, Glenn, and Colusa counties. In each county there is some good and some very poor rice. Where the weeds are not too thick "e rice looks well. On the more fertile soils sown to Colusa and Onsen, carly maturing varieties, the rice is heading.

On the west side a good deal of the old rice land not in crop this year is being irrigated and pastured by sheep, hogs, and cattle.

Since July 4, there has been a constant head of water for irrigation. If the water will hold up during the next six weeks as well as it has during the past month the crop under the Sutter Butte Canal system will be made.

A few of the early varieties in plats and in the nursery are starting to head.

Maximum temperature for July, 102 degrees, July 1; minimum, 52 degrees July 12; the greatest daily range in temperature, 44 degrees on July 4.

Max A. McCall and V. H. Florell visited the Station on July 4 and 5.

University Farm, Davis (V. H. Florell (July 22)

Threshing of the field plats was completed about July 10. The yields of wheat were very satisfactory considering the season and the quality was generally good, except in late varieties where kernels were more or less pinched. Test weights per bushel ranged from 57 to 62 pounds. Barley yields, on the other hand, were less satisfactory. A portion of the field on which these varieties were grown was sandy so that they suffered considerable drought injury and it became necessary to eliminate one of the replications. The remaining replications also show considerable variation and the large probable errors indicate that the yields are not very reliable. Most varieties were more or less pinched and bushel weights were low.

A list of yields of varieties of both wheat and barley is enclosed:

Average yields of 27 variaties of wheat grown in five sixtieth-acre plats at University Farm, Davis, Calif., in 1924.

Rank:	Variety	: : C.	: I. No.:	Av. yield : (Eu. per acre:	Frobable : error	
1	Schora X Cedar			(2 -	17.0	
2	(Cal.No. 573) Cudebaard		6228	67.3 64.2	±3.2 1§	
	Sonora X Cedar		0220	04.6	* y	
	(Cal.No. 903)			63.6	2,1	
ĵŧ	" 861)			61.0	J.5	
	Kharkov		1442	59 · 8	5.1	
	Senera Baart		36221 1697	58.4 53.0	5-8 5-5	
g	Galgalos No. 40*		10)1	55.5	2.5 3.1 3.1	
9	Jenkin		5177	53-7	2.1	
	White Odessa		4655	53.5	1.6	
	Hard Federation White Federation		4733 4981	50.3 49.3	2.3 2.4	
	Marquis		4158	48.9	1.1	
14	Ridit		6703	45.9	1.2	
	Federation		4734	48.7	3.4	
	Onas Little Club		5221 4066	43.1 46.7	3.1 1.4	
	Pilcraw		5540	46.1	1.8	
	Lynn		6346	45.9	1.2	
	Bunyip	٠	5125	45.3	1.2	
	White Australian Turkey Sel. 1571		7364	45.0 43.8	1.5 1.0	
	Pacific Bluestem	0	+067	41.8	1.2	
	Hussar		4847	40.2	2.1	
	Boadicea		6220	40.0	1.2	
	Martin		4463 660 7	33 .7 32 .7	•9 1.6	
27	Quality * Aver.	of 4	•	-acre plats.	1.0	

Average yields of 30 varieties of barley grown in hree fiftieth-acre plats at University Farm, Davis, Calif., in 1924.

_	:		: Aver.yield:	
Rank	: Variety :	C. I. No	.: (bu. per acre:	error
12345678	Arequipa Hero (H-6) Club Mariout	1256 1236 261	85.3 83.2 73.3	2.4 2.9 1.9
556	Coast Sel. 276 B Tennessee Winter +Clast Sil.8170 B	257	77.0 73.5 72.8	7.8 4.9 7.8
7 8	Chast Coast Sel. 190 B	690	72.1 71.8	4.2 6.3
9 10 11	Cape x Coast Cal. No. 1327 Kopec Coast Sel. 40 B	869	71.8 71.7 70.0	7.1 .7 4.6
12 13 14 15 16	Four Thousand Cal. No. 4000 Coast Sel. 45 B " " 268 B Tennessee Winter Cal.No. 22 Cape x Coast Cal. No. 1511 Mariout Sel., 2296	.7 4	68.6 67.3 66.2 65.5 62.0 60.7	3.4 5.5 8.3 7.4 6.3 6.2
18 19 20 21 22 23 24	Trebi Cape x Coast, Cal.No. 1435 Smryna Mariout Sel. Cal. No. 2275 " " 2290 Peacock, Cal. No. 2245	935 195	60.3 60.0 55.8 54.1 53.7 52.0	5.5 5.6 1.7 4.7 3.4
24 25 26 27 28 29 30	Cal. Maricut, Cal. No. 2241 Maricut Sel., Cal. No. 2292 Composite Cross Mechanical Mixture Nepal Chevalier Cape x Coast, Cal. No. 1518	276	49.9 41.3 29.5 27.1 16.6	1.8 1.0 1.7 1.5 1.5

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

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CEREAL COURIER

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Vol. 16

August 20, 1924

Personnel (Aug. 11-20) and Field Station (Aug. 1-15) Issue.

No. 19

PERSONNEL ITEMS

- Dr. C. R. Ball, senior agronomist in charge, will leave Washington on August 25 to visit and inspect the cooperative investigations of this Office at the Iowa, Minnesota, Wisconsin, and Indiana Agricultural Experiment Stations, and at Funk Bros. Seed Farms, Bloomington, Ill. While at Ames he will attend the meeting of the Corn Belt Section of the American Society of Agronomy on August 28 and 29.
- J. C. Brinsmade, Jr., in charge of cereal investigations on the Northern Great Plains Field Station, was married on August 16 to Miss Ellen Martin of Mandan. Their honeymoon will be spent in a tour of the Black Hills.
- Dr. G. N. Hoffer was in Washington August 14 and 15 to consult with agronomists and pathologists, and to visit the corn-improvement experiments at Arlington Farm. He also visited the Maryland Agricultural Experiment Station while in Washington. He left on Saturday morning, August 16, for Harrisburg, Pa., from which point he will travel by auto through the sweet-corn belt of northern New York, thence returning to his headquarters at Lafayette, Ind.
- M. A. McCall, who succeeds Mr. C. W. Warburton as agronomist in charge of cereal agronomy investigations, arrived in Washington on August 19 after two months spent in visiting field stations and in inspecting cooperative work in progress at various State experiment stations. Included in his itinerary were the States of Idaho, Washington, Oregon, California, Utah, Kansas, Nebraska, Wyoming, Montana, North Dakota, Iowa, Wisconsin, Illinois, Indiana, and New York,
- F. D. Richey, agronomist in charge of corn investigations, will leave Friday, August 22, for Columbus, Ohio, to confer with reference to cooperative corn experiments. From there he will visit the Iowa Agricultural Experiment Station, where he will inspect the corn breeding research conducted by Mesers. Jenkins and Bryan, and where he will be joined by Dr. H. K. Hayes, head of the Department of Plant Breeding of the Minnesota College of Agriculture, for a discussion of corn problems. On August 28 and 29 he will attend the meeting of the Corn Belt Section of the American Society of Agronomy at Ames. At the

close of the conference he will visit the corn breeding experiments at the University of Minnesota and then spend several days in connection with the corn investigations of this Office at some of the field stations in the Great Plains area, before returning to Washington.

Frank A. Spragg, associate professor of farm crops and research associate in crop breeding of the Michigan Agricultural Experiment Station, and collaborator of this Bureau, was instantly killed with his wife and youngest son on Tuesday night, August 12, when his automobile was struck by a fast train near Okemos, Mich.

T. R. Stanton, agronomist in charge of oat investigations, returned to Washington on August 15 from a short trip into Pennsylvania and New York in the interest of oat investigations. He reports that he found the crop in good condition in these States, but maturing much later than usual.

Mr. Stanton made several trips out of Ithaca with various members of the Plant Breeding Department staff of Cornell University, on oat and barley field inspection work. Fields of Cornellian, Standwell, and Empire oats and Alpha barley were inspected for seed certification. Some excellent fields of Cornellian were observed. This new variety is evidently growing in popularity among the farmers of New York. The farmers who have grown it for several years have come to recognize its high-yielding power and excellent quality of grain. The grayish color of the grain apparently is not particularly objectionable, as most of the crop is consumed on the farms on which it is produced.

Alpha barley likewise seems to be growing in popularity and has become rather widely distributed in the State. A number of excellent fields were seen.

G. A. Wiebe, in charge of cereal investigations at the Aberdeen Substation, will be engaged in part-time graduate study at the University of California during the fall and winter. He expected to leave Aberdeen about August 16.

VISITORS

- Mr. J. R. A. McMillan of Sydney University, Australia, a graduate student in the Department of Plant Breeding of Cornell University, who is pursuing special research studies on wheat and emmer, was an Office visitor on August 18. After spending a few days in several of the Offices of this Bureau, Mr. McMillan will proceed to Rateigh, N. C., where he will spend about a month with Dr. R. Y. Winters of the North Carolina Agricultural Experiment Station, studying the breeding of cotton. He will then return to Cornell University to resume his graduate studies.
- Dr. Phil. Oscar Rabbethge, a prominent breeder of sugar beet seed in Germany, was an Office visitor August 12. He is making a tour of the United States, studying seed breeding methods. After spending several days in Washington, he started West during the week of August 10, intending to visit the cooperative rice station at Crowley, La., and the Texas rice station at Beaumont, en route.

MANUSCRIPTS AND PUBLICATIONS

A paper entitled "Technique of Hybridization of Wheat," by <u>V. H. Florell</u>, in charge of cereal investigations at University Farm, Davis, Calif., was approved on August 18 for publication in the Journal of Heredity.

A brief article entitled "A Method of Increasing the Efficiency of Filter Cylinders," by <u>H. H. McKinney</u>, was approved August 11 for publication in Phytopathology.

Page proof of the paper entitled "Aecial Stages of the Leaf Rusts of Rye, Puccinia dispersa Erikss., and of Barley, P. anomala Rostr., in the United States," by <u>Dr. E. B. Mains</u>, was read August 19.

A paper by <u>S. L. Jodidi</u>, entitled "Physiological Studies on Cereals II. The Occurrence of Amino Acids and Polypeptides in the Ungerminated Oat Kernel," resulting from investigations cooperative between this Office and the Office of Plant Physiological and Fermentation Investigations, has recently appeared in the Journal of the Franklin Institute, v. 198, pp. 201-211.

Illinois Agricultural Experiment Station Circular 284 has just been received. It is entitled "A Program of Corn Improvement," by <u>C. M.</u>

<u>Woodworth</u>, and is a reprint of a chapter with the same title in Bulletin 255 of the Illinois station, which will soon appear under the authorship of <u>J. R. Holbert</u> et al.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs). No report.

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor). (Aug. 15) All threshing of grain has been completed and the fanning of grain and recording of bushel weights are now in progress.

The grain yields of winter wheat varieties obtained from replicated plats of 40th-acre size were on the whole below average. Straw yields were excessive and the quality of the grain poor. Lodging and disease (septoria, black chaff, and scab) were apparently the principal factors influencing the results. The yields given, with the exceptions noted, are based on the average of 3 plats, and comparison is made with the average yield of 6 plats of Purplestraw used as a check upon the variety.

Dawson, C. I. 6161, and Pennsylvania 44 were outstanding in yield. Dawson, Forward, and Rod Row No. 115, a Harvest Queen type selected from a hybrid by Dr. C. E. Leighty, are all stiff-strawed varieties and were only slightly influenced by lodging. Pennsylvania 44 continues to maintain its promise of being a very desirable strain of the Fulcaster type for this region. Its 3-year average, 35.9 bushels, is higher than all other varieties.

Yields of winter wheats grown in triplicate 40th-acre plats, compared with the average yield of 6 check plats of Purplestraw, at the Arlington Experiment Farm in 1924:-

periment farm in 192	4; -		
Variety	C.I.No.	Yield (Bu. per acre)	Gain or loss in compari- son to check (Bu.)
Dawson Pennsylvania 44 Fultz Rod Row No. 115	6161 6882 1923	33.9 39.0 31.7 35.6	+6.3 +6.1 +3.2 +2.8
Poole F3 Kanred X Genesse Red Rock Forward	3489 e Giant 5976 6691	30.9 29.9 29.1 33.5	+2.4 +1.8 +1.0 + .7
Fulcaster Leap Bearded Purplestraw Missouri Bluestem	6162 4825 1911 1912	27.8 30.2 28.7 25.7	+ .3 + .3 + .2 -1.2
Fulcaster (Hybrid) Mammoth Red Fultz	1945 3608 2008 3598	27.5 26.1 26.9 27.8	-1.4 -1.5 -2.0 -2.1
Purplestraw Genessee Giant Brown Fife Rocky Mountain	1957 1744 1933 1930	26.5 25.7 24.4 24.4	-2.4 -2.4 -2.7 -2.7
Dietz Rod Row No. 62 Currell Illini Chief	198 1 3326 5406	24.7 28.6 26.8 26.0	-2.8 -3.0 -3.1 -3.3
Stoner Rod Row No. 676 China Shepherd	2980 180 6163	25.9 24.2 24.7 23.6	-3.4 -3.4 -3.8 -3.9
Poole Potomac (Hybrid) Amber Longberry	1979 1733 3614 1973	24.7 24.8 24.2 21.7	-4.2 -5.1 -5.4 -5.4
Rod Row No. 959 Kanred Purplestraw* Wheat-rye 16-1A**	51 ⁴ 6 1915	23.1 19.7 29.7 32.8	-8.5 -13.1 + .2
Illinois Fultz** Berkeley Rock** Theiss** Stoner Az**	6941	30.5 30.1 29.5 28.4	-1.4 -1.8 -3.1 -3.5
**	Average of 40 Data from dupl	icate 40th-acre	plats.

Gain or loss compared

The yields of winter oats were above average, and the quality of the grain excellent. Despite the fact that severe lodging of the later-maturing varieties (Winter Turf type) caused considerable mechanical loss of grain in harvesting, the Winter Turf selections head the list. Lee and Custis, two hybrid selections made by T. R. Stanton, though not as winterhardy as the Winter Turf group, continue to appear valuable. In addition to their yielding ability, they possess the desirable grain quality of the Aurora parent.

Kanota and Fulghum are indistinguishable in growth habit and are similar in yielding qualities.

Yields of Cats for 1924:

Da

Yield

<u>Variety</u>	C.I.No.	(Bu. per acre)	-ith check average.
ata from triplicate 40th-acre	plats:		
Winter Turf Po Lee Culberson	435-4 541-4 2042 273-I-14	81.5 79.2 74.0 63.6	+11.3 +9.0 +5.3 +2.3
Winter Turf Custis Dwarf Culberson Selection 1001hl-4B	431 2041 748	70.9 68.7 61.9 66.8	* .7 * .5 3 -1.*
Selection 1001fl-1B Bicknell Aurora Fulghum	206-155 831 7 08		-6.3 -7.7 -10.4 -12.3
Kenota Hatchett Red Rustproof Ferguson Navarro Culberson*	839 838 1815 966 273	43.1	-12.8 -13.5 -18.2 -37.7
ata from duplicate or single	40th-acre	plats:	
Hutcheson Hardy Rustproof Dwarf Culberson X Fulghum Red Rustproof (Ferguson 71) Fulghum X Hatchett Winter Turf X Aurora	947 518-189 844		-18.4 -10.3 -33.0 -34.3 -21.3 -6.0

^{*} Average of 24 check plats.

Alstroum spelt, C. I. 3264, in the past four years has consistently outyielded Alstroum, C. I. 1773, although in appearance they seem identical. The spelt yields for 1924 were above average.

The following yields were obtained from spelt and emmer grown in duplicate 40th-acre plats at Arlington Farm in 1924:

<u>Variety</u>	C.I.No.	Yield of grain (Bu. per acre)
Alstroum White Bearded Alstroum Black Winter Emmer	3264 1724 1773 2337	88.4 80.5 79.3 26.5

Average of check plats of Purplestraw: 32.2

When deduction is made for the chaff of the spelts, Alstroum, C. I. 3264, produced slightly more grain than Purplestraw wheat.

Spelt seeded at the rate of 6 pecks per acre in a two-40th-acre-plat test gave an average yield of 65.7 bushels per acre as compared to 70.6 bushels per acre for the 12-peck rate.

The following yields were obtained from rye, sown in single 20th-acre plats:

Variety	C.I.No.	Yield of grain (Bu, per acre)
Von Rümker	173	39.3
Rosen	195	38.5
Star	209	37.6
Virginia	128-1	34.1
Von Rümker	133	32.4
Giant Winter	30	31.2
Abruzzes	μ0	30.2
Henry	1 38	30.0
Winter	508	29.4
Rimpau	126	29.3
Ivanof	34	28.7
St. Johns	130	26.7
Mexican	108	25.5

Rye yields for 1924 express the effects of lodging as much or more than those of winter wheat. Considerable lodging occurred just before flowering of the earlier maturing varieties such as Rimpau, Winter, and Abruzzes, but the later varieties, Rosen, Star, and Von Rümker, were not far enough vegetatively developed to be injured by the rainy weather and wind. It is estimated that not over 50 per cent of the flowers of Abruzzes set seed.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love).
No report.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins). No report.

Agricultural Experiment Station, Baton Rouge (H. F. Stoneberg). No report.

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler). (Aug. 16) Although the Missouri corn crop improved a great deal during July and August, the prospect is still somewhat below normal, due to the extremely unfavorable conditions early in the season.

According to the State Crops Report, Missouri wheat yields averaged 12.8 bushels per acre on 2.069,000 acres, and oat yields averaged 28.1 bushels per acre on 1,518,000 acres, in 1924.

We are just finishing corn pollination on the Station field. We have had a rather poor crop season but a good season for pollinating, and have made about 2,000 pollinations in our economic breeding corn and about 1,500 in our study of variation in the intensity of linkage in maize. In addition, Dr. W. H. Eyster has made about 2,500 pollinations in his various genetic studies.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer). No report.

IOMA

Agricultural Experiment Station, Ames (M. T. Jenkins). No report.

Agricultural Experiment Station, Ames (Investigations of Crown Rust of Cats, S. M. Dietz). No report.

Iowa State College, Ames (Barberry Eradication, M. A. Smith). No report.

ILLINOIS

Fun't Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert). No report.

Post Office Building, Urbana (Barberry Eradication, G. C. Curran). No report.

INDIANA

Purdue University Agricultural Experiment Station, Lafayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer). No report.

Furdue University Agricultural Experiment Station, Lafayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains). No report.

College of Agriculture, Purdue University, Lafayette (Barberry Fradication, h. E. Leer). No report.

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer). (Aug. 16) On July 18, the State Leader sent an inquiry to all of the county agricultural agents in western Ohio, for the purpose of getting a general estimate from them of the prevalence of black stem rust in their respective counties this year. The barberry eradication campaign has been in progress in western Ohio for the last six years and it was felt that the rust conditions there would have a direct relation to the success of the eradication campaign. As a result of this inquiry, 23 county agents sent in signed statements of the general rust conditions in their counties this year.

In Allen county the county agent had not heard of a single report of black stem rust this year. The situation in this county, especially in Monroe township, is interesting, in view of the fact that three years ago, previous to the removal of a large barberry bush, certain fields of the township had suffered severe stem-rust losses. The county agent in Licking county also reported very little stem rust in that county this year. He thinks that it is possible that the absence of black stem rust in his county this year is due to the barberry eradication survey of last year.

Reports received from a total of 23 counties of western Chio indicate that very little or no stem-rust infections have been noticed this year, and that the probable loss from black stem rust is negligible.

MICHIGAN

Agricultural College, East Lansing (Barberry Bradication, W. F. Reddy), No report.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson). No report.

Agricultural Experiment Station, Madison (Theat Rosette and Take-All Investigations, H. H. McKinney). No report.

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker). (Aug. 7) The original survey has been completed in Taylor, Price, Langlade, and Shawano counties; in several other counties it is nearly finished.

Sprinklings of stem rust have been noticed in various sections of the State. A light epidemic was observed on rye and wheat in the vicinity of Black Earth and Sauk City, traceable directly to barberries. From a trace to 10 per cent of stem rust was found in the vicinity of the Trempealeau area of escaped bushes. A second survey is now being carried on in that county. Traces of stem rust have appeared in Dodge county again this year. A few barberries have been found in a second survey of this county, some of which have been traced from the rust. Observations for the occurrence of stem rust are being made in Forest and Florence counties in northern Wisconsin in connection with the original survey of these counties for barberries. No trace of rust was found on any grains or grasses except in the vicinity of barberry bushes until August 1. About that time a general trace of stem rust was noticed on all cereals. A rather intensive epidemiclogy study is being

carried on in these counties, because stem rust has been reported to be very prevalent there for many seasons and it also has been thought that no barberries are present.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt). No report.

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman). No report.

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander). No report.

GREAT PLAINS AREA (South to North)

OKT, AHOMA

Moodward Field Station, Woodward (J. B. Sieglinger). (Aug. 15) On August 3 I made a trip to Lindsay, Okla., in company with Mr. G. C. Gibbons, to observe the Standard broomcorn crop. We made Pauls Valley our headquarters for the tro days we were in the broomcorn district. Pauls Valley is the county seat of Garvin county, and the county agent took us through the district. One thing which I soon noticed is that the Standard broomcorn district is spreading in at least three directions, i.e., east, north, and south. I was not through the district to the west, but I imagine it has spread in that direction also. Since I was in the Lindsay district before, in 1916, the Black Spanish variety of Standard has been introduced and at present it appears to constitute at least one-half of the acreage in the Standard district. This variety is characterized by being about two weeks earlier than the other Standard variety known as Tennessee Evergreen. It also runs slightly shorter in length of brush.

From present indications there will be a shortage of hurl or long brush in the Lindsay district. Most of the crops we saw will not have enough hurl for self working, but can be used as insides to some whisk brush. In some of the fields where the stand was thin because of the wet spring, there will be a high percentage of "crooks" or goosenecks. There is also considerable kernel smut in many fields. In one field in particular, we estimated at least 10 per cent smut. The prices were running from \$200 to \$245 per ton. Most of the growers are saying that the yield will be light this year, but the fields we saw should yield from one-fourth to one-third of a ton to the acre.

In that part of the State through which we traveled, the prospects for a feed crop are very good. Corn will also make good over most of the State.

(Aug. 16) The first half of August has been favorable for the growth of rowed crops. The sorghums and broomcorn have made rapid growth, and are heading and maturing nicely at present.

The principal work on the cereal project has been counting stands, bagging seed heads, and hoeing weeds. The first three date plats of Acme broomcorn and the May I date of Feterita were harvested today. Many of the sorghum hybrids and selections are developing very rapidly, thus making the work rather rushing at present.

Maximum temperature for the first half of August was 102° on the 3rd and 5th; minimum, 63° on the 13th. Precipitation for the month to date, 3.69 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker). No report.

Havs Branch Experiment Station, Hays (A. F. Swanson). (Aug. 15) The long dry spell which continued throughout most of June, July, and into August was broken last night when 1.38 inches of rainfall were recorded. During the above period, temperatures for short intervals registered above 100°. In the main, however, temperatures have been a little below normal. Corn and sorghums have not been as greatly affected by the drought as might have been expected. A good sorghum crop is now almost assured.

All of the sorghums are headed and some of the early selections and varieties are beginning to ripen. The feterita crop is of considerable promise this year. An early Dwarf Freed sorgo, which has been in process of development at this station for several years, is showing up very favorably. A new selection of Blackhull kafir is maturing nicely with promise of a good yield.

Yields of winter wheat at the Hays Field Station, 1924:

•		
<u>Variety</u>	C.I.No.	Acre yield (Bu.)
Blackhull	6251	43.4
Nebraska No. 28	5147	41.7
Nebraska No. 6	6249	39.1
Baart P704		38.7
Nebraska No. 60	6250	38.6
Turkey (Imp.)		37-9
Sherman		37.4
Harvest Queen		37.2
Icbred		37.1
Altera	1.01:7	36.6
Hussar	4843	35.9 34.8
Kanred	5146	34.6
Turkey (Kans. 1664)	6155	3/4. 14
Minturki Fulcaster		34.3
Kharkof	1442	34.2
Kharkof (Hays No. 2)		33.8
Turkey	1558	33.7
Kharkof (Mont. 36)		30.6
Karmont		30.8

Yields of spring oats at the Hays Field Station, 1924:

Fulghum 708 Kherson 459 Burt 293 Kanota 839 Kanota (Checks) 839	60.7 57.0 57.0 56.6 55.5
Richland 787	55.5

(Yields of spring oats, continued)

<u>Variety</u>	C.I.No.	Acre vield (Bu.)
Sixty Day Burt X Sixty-Day Gopher	165 727 2027	54.7 54.7 53.9
Red Rustproof (Tex.1118-2) Ferguson No. 71		52.7 52.7
Albion Burt (Akron 916)	729 2054	52.0 48.0

Yields of spring barley at the Hays Field Station, 1924:

Club Mariout	261	38.2
Cape Coast Hybrid No. 11		37.8
Flynn	1311	37.0
White Smyrna	195	36.4
Beldi	190	34.\ \
Coast	690	34.1
Gatami	575	33.1
Blackhull	1878	32.1
Stavropol	2103	30 .7
Himalaya		28.9
Odessa	182	25.0
Meloy		28.1
Hannchen	531	19.0

The wheat varieties were replicated three times, and the oat and barley varieties once. The above yields are subject to correction as final check of data has not yet been made.

There seems to be an unusual large amount of early fall listing and plowing for winter wheat in this section. Because of the high price of wheat and good yields, there is a strong incentive for farmers to put in a large acreage this year.

Prof. A. F. Heck of the Vashington State College and Mr. E. F. Chilcott of Woodward Field Station, Woodward, Okla., were recent visitors at this station.

COLORADO

Akron Field Station, Akron (F. A. Coffman, on field trip). (Aug. 12) As usual in that part of Colorado, Akron suffered from a severe drought this season, although it came earlier than usual.

Mr. Martin had been at Akron for several weeks when I reached there July 13. The crops were late in maturing and harvest had only started. We went over the some 6,000 seedings and discarded all but those we believed to be of sufficient value to harvest. By doing our discarding in the field, we saved a great amount of time and money. We left Akron together in the evening of July 18. At that time we had practically completed harvesting.

I returned to Akron from Ft. Collins on July 25, and started threshing the grain. As a whole the yields were the lowest in the 8 years I was

connected with that station. Dry weather in May, an unusual condition, had prevented tillering and shortened the straw. The heads were short and poorly filled. A late rain produced the unusual result of later-maturing varieties outyielding the early-maturing ones. Some of the late wheats yielded from 5 to 8 bushels per acre and tested 60-63 pounds per bushel. That's a new result at Akron to me. With the exception of a few rate-date plats, all of the threshing was completed when I left Akron the evening of July 31. Mr. Leonard of Ft. Collins completed threshing.

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren).
No report.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague). No report.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel). No report.

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger).
No report.

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel).
No report.

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue). No report.

Dickinson Substation, Dickinson (R. W. Smith). (Aug. 15) The harvesting of Marquis wheat and the threshing of winter rye in this vicinity were begun the latter part of this week. The general harvest will be on about August 20. At the Substation the harvesting of winter wheat and barley varieties is finished and the harvesting of oats and spring wheat is under way. Flax varieties are ripening.

In general, the crop prospect is good in this county and throughout this part of the State. Stem rust will probably reduce the yields of late sown wheat, but most of the wheat crop should escape with but little injury from rust. Yields of durum wheat will be reduced by injury from root rot. Hessian Flies were found here in small numbers by Mr. C. N. Ainslie, government entomologist, and a serious outbreak of these insects was found in spring wheat at Beach, N. Dak. Cool weather has prevailed this month, preventing the spread of rust and favoring the development of cereal crops with the exception of corn, which is late in tasseling as a result of cool weather.

In the corn nursery, 740 selfs have been made. Minimum temperatures below 40 degrees, which have recently prevailed, threaten early frosts which may prevent their maturity.

Official visitors at the Substation during the first half of August included Director Trowbridge, Prof. L. R. Waldron, Prof. H. D. Long, and Professor Miller from the State Experiment Station and Agricultural College; Dr. H. K. Hayes from University Farm, St. Paul; Mr. C. N. Ainslie, government

entomologist; Mr. L. W. Kephart of the Forage Crop Office, and the following in connection with various lines of work for the Office of Cereal Investigations: Messrs. M. A. McCall, J. A. Clark, A. C. Dillman, J. H. Martin, O. S. Aamodt, E. B. Lambert, and W. L. Butler.

Morthern Great Plains Field Station, Mandan (A. C. Dillman for J. C. Brinsmade, Jr.). (Aug. 16) The harvest of all small grains in varietal experiments has been completed. Barley and oat varieties were harvested during the period July 28 to August 7, and wheat from August 7 to 12. The range in time of maturity between early and late varieties was shorter this year than usual. Nearly ideal growing weather allowed small grains to ripen normally.

The flax-wheat and flax-oat mixtures ripened evenly and were harvested on August 14. Marquis wheat and Victory oats were the varieties grown in mixtures with flax.

The precipitation for the seven months, January to July, amounted to 10.27 inches, which is about 2 inches above the normal for that period in this locality. Only a trace of rain was recorded from August 1 to 15. Maximum temperature was 85° on August 1; minimum, 42° on August 12.

Western North Dakota and Eastern Montana (A. C. Dillman). Aug. 14. I left Mandan a week ago today, August 7, driving across country to Minot, N. Dak., in order to take the Great Northern to Havre. Crop conditions between Bismarck and Minot were good to excellent. In the vicinity of Minot there were more late fields of wheat, and I judged harvest would not be general there before August 15. I examined only one field of late grain for rust. This showed a considerable rust infection, and it is probable that it will do some injury to this late wheat. The growing conditions have been so favorable for wheat, however, that in spite of a moderate rust infection on the late grain, it is filling very well. If hot weather or drought had occurred, the effect of the rust might have been much more serious.

There was a large acreage of flax on the route we drove over, and it was in excellent condition. The bulk of it would not be ripe, however, before the latter part of this month or the first of September.

At Havre, August 9, crops appeared to be only fair. Driving some 50 miles down the Milk River Valley, I saw a very large acreage of flax. It was grown on breaking for the most part, on land that had recently been put under irrigation. The fields were not well irrigated, but the flax looked fairly good even on the dry land. One dry-land field was being harvested, and I estimated it would yield 10 bushels per acre. It was one of the best fields noted.

MONTANA

Judith Basin Substation, Moccasin (R. . May). Aug. 15. With the exception of a few of the latest varieties in plats, the harvesting of all the winter wheat under the Cereal Project was completed yesterday. The barley varieties and almost one-half of the oat varieties in both plats and nursery rows have been harvested. None of the spring wheat varieties have been harvested though the earlier varieties are almost ready for harvest. Most of the flax is about 50 per cent ripe. Corn is very backward, having just begun to silk.

A hailstorm which occurred on August 5 severely damaged the cats in nursery rows and some of the corn. The small spring grains in plats were outside of the main path of the hailstorm and were not damaged severely, though the cats were injured more than the other grains. The winter wheat in plats was injured only slightly. The early cats in nursery rows were damaged from 75 to 90 per cent, while the late varieties were damaged from 50 to 75 per cent. The greatest damage to the wheat in nursery rows probably did not exceed 10 per cent. The barley and flax in nursery rows were not noticeably damaged.

This is an extremely busy season. Harvesting, note-taking, roguing mixtures, threshing, cleaning and weighing seed, fall seeding of plats and nursery rows, and mailing seed, each competing for time and attention at this season. Each of these operations should be in progress, but some of them must be delayed until later.

Considerable winter wheat has already been sown in the vicinity of the Substation. Most of the farmers are sowing their wheat with furrow drills. Possibly 50 per cent or more of the winter wheat sown in Judith Basin County this fall will be sown with furrow drills. The furrow method of sowing winter wheat is becoming very popular.

The precipitation recorded in the first 15 days of August was 1.14 inches as compared to 1.46 inches as the average precipitation for the whole month. The precipitation from the hail and rain on August 5 amounted to .99 of an inch.

Visitors at the Substation since August 1 were Dir. F. B. Linfield and Mr. Post of the Montana Experiment Station, and Messrs. J. A. Clark and A. C. Dillman of the Office of Cereal Investigations.

(A. C. Dillman) Aug. 14. At Moccasin the flax experiments are in excellent condition and promise good yields. The effect of manure in D.L.A. rotation 246 - corn on land manured and spring plowed alternating with flax on disked corn stubble - is at last showing very marked improvement in the flax yields. Rotation 245 is the same without manure. Flax wilt has appeared in some plats, especially rotations 247 and 248, and it would seem desirable to use a wilt-resistant variety in the future. I did not find any pasmo or canker in any of the plats examined.

State College of Agriculture. Bozaman (Barberry Eradication, W. N. Christopher). Aug. 6. Barberry eradication is in full swing in Montana, with a force of 15 field men besides the State Leader. It is progressing in the eastern tier of counties, and to date original and second surveys have practically been completed in Carter, Fallon, Fibaux, Richland, Roosevelt, and Park counties, and in parts of Lake and Flathead counties.

Stem rust of wheat was first observed July 16, at which time reports were sent to the various agencies interested. To date the district of stem rust has been mapped and found to be prevalent over the eastern tier of counties south of the Missouri River.

One thoroughly rusted barberry bush was found near Sidney, and rust was prevalent on grass and wheat in the immediate vicinity. It is possible that this, together with other undiscovered locations of barberry in eastern Montana, is responsible for the infection of rust this season.

Leaf rust of wheat has been found scattered over the State, the heaviest infection occurring in Gallatin County.

One location of heavily rusted <u>Rhamnus cathartica</u> was found in Roosevelt County, and oats in the near vicinity showed an infection of rust directly traceable to the hedge mentioned. Infections also have been reported on Rhamnus species in Flathead and Lake counties.

Covered smut of wheat and barley is doing considerable damage in the Flathead region. Estimates of the loss sent in by Dr. H. M. Jennison show some fields with a loss often as high as from 30 to 40 per cent. The average loss estimated the last of July in these counties was 8 to 10 per cent.

Stripe rust of wheat is very light, the only infection noted so far being in Gallatin County, where it is doing little or no damage.

The writer completed a 2,500-mile trip in Montena July 27, and noted crop conditions throughout the Yellowstone Valley, the eastern part of the State, the Missouri River Valley, and the region around Great Falls and Havre. With the exception of the area commonly known as the Triangle, comprising all of Blaine, Hill, Choteau, and part of Cascade counties, crops are in the best condition that they have been for several years. Wheat gives promise of excellent yields throughout the entire region, with the exception of the aforementioned Triangle. In this region all cereals are badly burned. Flax is in fine condition in the northeastern part of the State, with the exception of a few fields where a fairly heavy infection of wilt and canker are noted. Harvesting had begun in the following counties on July 21: Yellowstone, Cascade, Dawson, Sheridan, and Rosebud. It is reported that harvest will be under way in the eastern part of the State by August 10.

Corn is later than usual because of the unfavorable weather conditions, and it is unvise to predict anything concerning the yield.

Approximately 200 barberry bushes were found the past month in the following counties: Fallon, Richland, Gallatin, Park, Flathead, Lake, Cascade, and Carbon.

Mr. E. H. Ostrom, formerly Agent with the Office of Cereal Investigations, has been retained by the Conference for the Frevention of Grain Rust as Publicity and Demonstration Agent for the State of Montana. Mr. Ostrom reported for duty August 10 at this Office, and is planning a complete series of demonstrations to be given at the various county and other fairs during the next two months.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe). Mr. F. A. Coffman, writing from Aberdeen on August 6, states that he has made fair progress in harvesting the oats in the breeding nursery. The crop is not as good as it was last year, but it was quite a relief to see so good a crop especially after coming from Akron, Colo., where most of the cereal crops were exceedingly poor. He reports that at Akron the best oat varieties produced yields of only 10 to 15 bushels per acre on fallow. The winter wheats are running from 5 to 8 bushels per acre.

Writing under date of August 14, Mr. Coffman reports that the work at Aberdeen has progressed very favorably and that he is practically through harvesting the oats except the dwarf plants which will be green for some time.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford). No report.

OREGON

Sherman County Branch Station, Moro (D. E. Stephens). Aug. 12. We have just finished threshing our nursery and are rather enthusiastic about the value of the results obtained from our various cereal nurseries throughout eastern Oregon. This extra nursery work entails considerable more work and travel but I think the results amply justify the extra expense. We shall have this year information and accurate yields on a great many of the new grain varieties and selections from nurseries planted in six different locations in the State.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones). No report.

University Farm, Davis (V. H. Florell). No report.

Agricultural Experiment Station, Berkeley (F. N. Briggs). No report.

CEREAL COUDIFT

Official Messenger of the Office of Careal Investigations, Bureau of Plant Industry, U. S. Dept. of Agriculture. (NOT FOR PUBLICATION)

Vol. 16

August 31, 1924
Personnel (Aug. 21-31) and Project Issue.

No. 20

PERSONNEL ITEMS

The following members of the staff of the Office of Cereal Investigations attended the meeting of the Corn Belt Section of the American Society of Agronomy held at Ames, Ia., August 23 and 29: Dr. C. R. Ball and F. D. Richey, of the Washington Office; Dr. H. K. Hayes of St. Paul, Minn.; Dr. A. M. Brunson and Prof. J. H. Parker of Manhattan, Kans.; J. R. Holbert of Bloomington, Ill.; and B. H. Duddleston and Dr. G. N. Hoffer of Lafayette, Ind.

E. A. Coffman, associate agronomist in cat investigations, returned to Washington August 31 after having spent about two months on a field trip. He arrived at Aberdeen, Idaho, on August 2 from Akron, Colo., and spent approximately two weeks there harvesting oats. After leaving Aberdeen August 17, he conferred with officials of the experiment stations at Bozeman, Mont., Dickinson, Mandan, and Fargo, N. Dak., and St. Paul, Minn., arriving at St. Paul August 26. He states that the crops in Idaho suffered from a slight shortage of water for irrigation, but in the vicinity of Aberdeen average yields, as a whole, were obtained. Considerable Federation wheat and Victory oats were grown in the section surrounding the Aberdeen station the past year.

Unusually good crops were harvested in the northern tier of States. In the vicinity of Fargo, N. Dak., and Moorhead, Minn., one of the best crops in the history of the section was harvested this year. Some yields of 50 to 60 bushels of wheat to the acre, and yields in excess of 100 bushels of oats to the acre were reported.

En route from St. Paul to Washington, D. C., Mr. Coffman observed that small grains in southern Wisconsin and northern Illinois and Indiana were in the shock and threshing was in progress. Corn in that section was backward, and some fields were in danger of being injured by frost. Some apparently had not as yet reached the milk stage.

VISITORS

Dr. Rudolf Kuraz, Secretary, Czechoslovak Legation, visited the Office August 21 and consulted with our pathologists regarding methods of treating seed grain for the control of seed-borne diseases.

<u>Dr. Wilfrid Robinson</u>, Senior Lecturer in Cryptogamic Botany, University of Manchester, Manchester, England, and Mycologist for the British Cotton Growers' Association, visited the Office August 20 and inspected our pathologic laboratory and greenhouse equipment at Arlington Farm.

A delegation of farmers from Rowan and other counties of North Carolina visited Arlington Farm on August 26. The trip from North Carolina was by automobile, and stops were made at some of the leading farms in the country passed through, and also at Beltsville, Md., where experiments of the Bureau of Animal Industry were inspected. Representatives of the Office of Cereal Investigations were present at Arlington Farm to explain the work of the Office.

MANUSCRIPTS AND PUBLICATIONS

A manuscript entitled "Variation in the Kherson Oat at Akron, Colo.," by \underline{F} . A. Coffman and \underline{T} . R. Stanton, was submitted on August 23 for publication in the Journal of Agricultural Research.

A manuscript entitled "Effects of the Method of Desiccation on the Carbohydrates of Plant Tissue," by <u>Karl Paul Link</u>, was submitted on August 30 for publication in the Journal of the American Chemical Society.

The paper entitled "Pistillody in Wheat Flowers," by <u>C. E. Leighty</u> and <u>W. J. Sando</u>, has been published in The Journal of Heredity, v. 15, no. 6, p. 263-268, figs. 15 and 16. June, 1924. (The number was received August 22, 1924.)

The paper entitled "Simultaneous Surveys for Stem Rust: A Method of Locating Sources of Inoculum," by E. M. Freeman and L. W. Melander, has been published in Phytopathology, v. 14, no. 8, p. 359-362, 1 fig. August, 1924.

The paper entitled "Equipment and Methods for Studying the Relation of Soil Temperature to Diseases in Plants," by R. W. Leukel, has been published in Phytopathology, v. 14, no. 8, p. 384-397, 5 fig. August, 1924.

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations, Bureau of Plant Industry, U. S. Dept. of Agriculture. (NOT FOR PUBLICATION)

Vol. 16

September 10, 1924 No. 21
Personnel (Sept. 1-10) and Field Station (Aug. 16-31) Issue.

PEPSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, who attended the meetings of the Corn Belt Section of the American Society of Agronomy at Ames August 28 and 29, writes from Ames that the meetings were very well attended and very well managed. There were about 80 agronomists from Kansas, Nebraska, South Dakota, Michigan, Wisconsin, Minnesota, Indiana, Illinois, Missouri, and Louisiana, besides the Iowa people and a few from commercial agencies, or about 100 in all. The meeting goes to Michigan in 1925, probably in July. After the Ames meetings, it was Doctor Ball's intention to visit the experiment stations of Minnesota, Wisconsin, Illinois, and Indiana.

Chas. E. Chambliss, associate agronomist in charge of rice investigations, left Washington September 6 on a southern trip. He went direct to Crowley, La., where he will inspect experiments being conducted at the Crowley Rice Field Station. He will remain there until about October 1, when he will proceed to points in North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana, and Texas to confer with experiment station officials and others interested in rice investigations. He will return about the middle of October.

J. Allen Clark, agronomist in charge of western wheat investigations, returned to Washington September 1, after having spent more than three months in the field.

Leaving Washington on May 28, he first visited Manhattan and Hays, Kans., where about a week was spent in the study of the varietal and breeding experiments with hard red winter wheat. Proceeding to Davis, Calif., about two weeks were spent studying and harvesting hybrid material in the breeding of better-quality white wheats. Several hundred foreign introductions and new domestic productions also were studied and described while there. Mr. Clark then proceeded to Oregon, stopping at the central Oregon station at Corvallis, while en route to the Sherman County Branch Station, Moro, Oreg. There extensive cooperative wheat breeding studies are under way with both winter and spring white wheats, and with hard red winter wheats. Mr. Clark also stopped at Pendleton to inspect a cooperative wheat

nursery of promising new hybrid and smut-resistant and immune selections grown by County Agent Fred Bennion. At Union, Oreg., there were under experiment for the first time extensive varietal plat and nursery experiments conducted by the State. A very excellent start had been made there in cereal investigations. Mr. Clark was particularly interested in seeing selections of the so-called "awnless" rye which has been grown at Union for a number of years. In his opinion, the material was from a natural wheat-rye hybrid, apparently a cross between the local rye and Goldcoin wheat. While this material has been grown for 7 or 3 years, there still was segregation for awns and a large percentage of sterility, and there did not appear to be any promising awnless strains with a high degree of fertility.

After leaving Oregon, Mr. Clark stopped at the Utah Agricultural Experiment Station at Logan to see the wheat breeding work of Prof. George Stewart; at Aberdeen, Idaho, to inspect the cooperative wheat breeding experiments conducted with white spring wheats under irrigation; and at the Laramie Agricultural Experiment Station to see the agronomic experiments under irrigation, conducted by Professor Vass. Mr. Clark's next stop was at the Cheyenne Field Station at Archer, Wyo., where dereal experiments are being continued by the State through the efforts of Mr. Nelson, representative of the Office of Dry-Land Agriculture. At North Platte, Nebr., Mr. Clark inspected the cooperative wheat experiments being conducted for the first year at that station in cooperation with Prof. L. L. Zook, station agronomist, by G. F. Sprague, newly appointed representative of the Office. While in Nebraska Mr. Clark also stopped at Lincoln to see the experiments conducted with wheat by Prof. T. A. Kiesselbach. A short stop also was made at Ames, Ia., from which point Mr. Clark proceeded to Niagara Falls, Ontario, Canada, where he delivered a paper at the Annual Convention of the National Macaroni Manufacturers' Association, entitled "Improving the Quality of American-grown Durum Wheats."

Returning immediately to the west, Mr. Clark inspected the cooperative experiments at University Farm, St. Paul, Minn., in the breeding of rust-resistant hard red spring and durum varieties. A couple of weeks were spent at Fargo, N. Dak., where experiments are under way for the breeding of hardy winter wheats. While at Fargo, careful observations were made of the appearance of black stem rust upon spring wheats, and of the resistance to this disease of many new hybrid strains of spring wheat in the wheat breeding nursery of Prof. L. R. Waldron, plant breeder of the North Dakota station.

At the Northern Great Plains Field Station, Mandan, N. Dak., Mr. Clark made an extended study of the rust resistance of extensive series of F4 and F5 selections of Kota x Hard Federation, and other crosses. At this station Mr. Clark has been conducting experiments in breeding for rust and drouth resistance in hard red spring wheats. At the Dickinson, N. Dak., and Moccasin, Mont., stations, Mr. Clark inspected the cooperative cereal experiments and wheat breeding studies being conducted. Visits also were made at the field stations at Havre, Mont., and Sheridan, Wyo. At Bozeman, Mont., a cooperative hybrid study in breeding wheat for both yield and quality was given special personal attention by Mr. Clark.

Returning eastward, stops were again made at Dickinson, Mandan, and Fargo, N. Dak., for the purpose of assisting in harvesting and threshing some of the hybrid material. A stop also was made at Minneapolis, Minn., for the purpose of conferring with station officials and with representatives of the milling industry.

- Dr. James G. Dickson attended the conference of the National Research Council of Canada on grain rust problems and other cereal diseases, held at Winnipeg, Canada, September 9 and 10. He presented a paper on barberry eradication and the occurrence of stem rust in Wisconsin. From Winnipeg he took a field trip into the grain-growing districts of Manitoba.
- A. C. Dillman, associate agronomist in charge of flax investigations, returned to Washington September 6, after spending two months in the principal seed flax-producing States North Dakota, Minnesota, South Dakota, and Montana. He reports that the seed-flax crop is quite uniformly good throughout the territory he has covered, and that the total crop this year is certain to be the largest produced in this country since 1912. It is noteworthy that the bulk of this crop has been grown on old land, whereas only a few years ago the crop was grown largely on breaking.

Mr. Dillman conferred with officials at the North Pakota Agricultural College on September 2 and 3, and on the evening of September 3 heard Sir John Russell, director of the Pothamstead Experiment Station, deliver an illustrated lecture on the "History of English Agriculture."

Threshing operations were in full progress in the Red River Valley. Yields of spring wheat ranging from 15 to 25 bushels per acre were reported. The harvest of flax was completed, except for a few late-sown fields. Injury from flax rust was reported from several localities in the Red River Valley during August, but this disease apparently did not do serious damage. An examination of numerous fields south of Fargo and eastward in Minnesota did not show appreciable injury from rust.

On September 4, Mr. Dillman conferred with officials at University Farm, St. Paul, Minn., in regard to results of flax experiments at this station, thence returning to Washington, D. C.

V. F. Tapke, associate pathologist in cereal smut investigations, left September 9 for Ithaca, N. Y. He will be located at the Cornell University Agricultural Experiment Station for about a year, to continue his investigations on the loose smuts of cereals and to finish his graduate studies in plant pathology, plant physiology, and botany.

VISITORS

F. L. Engledow of the School of Agriculture of Cambridge, England, visited the Office several times during the past week, on his return from Raleigh, N. C. Since leaving Washington in July, he visited the experiment stations at St. Paul, Minn., Ithaca, N. Y., Guelph, Ontario, and Raleigh, N. C., and attended the meetings of the British Association for the Advancement of Science at Toronto, Canada.

Ferdinand H. Steinmetz, member of the Farm Crops Section of the Division of Agronomy and Farm Management, University of Minnesota, was an Office visitor September 10. Mr. Steinmetz is cooperating with the Bureau of Agricultural Economics in establishing grades of prairie hay.

MANUSCRIPTS AND PUBLICATIONS

The manuscript entitled "Tiffcots of the Method of Tesiccation on the Carbohydrates of Plant Tissue," by <u>Karl Paul Link</u>, was approved September 2 for publication in the Journal of the American Chemical Society.

The paper entitled "Investigations on the Nematode Disease of Cereals Caused by <u>Tvlenchus tritizi</u>," by <u>P. W. Leukel</u>, has been published in the Journal of Agricultural Research, v. 27, no. 12, p. 925-956, 2 figs., 5 plates. March 22, 1924. (The number was received September 6, 1924.)

Farmers' Bulletin 1429, entitled "Emmer and Spelt," by John H. Martin and Clyde E. Leighty, was received from the Government Printing Office September 9.

NOTICE.

It is requested that all accounts for the period from July 1 to September 30, inclusive, be submitted as promptly as possible so that a fiscal statement may be drawn for the first quarter.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens, (R. P. Childs). No report.

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor). No report.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love).
No report.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins). No report.

Agricultural Experiment Station, Baton Rouge (H. F. Stoneberg).

(Sept. 1) The weather during August was very hot and dry. The long summer drought was broken by a few scattered thundershowers which fell the latter part of the month. This was the first rain since June 1.

The rain came too late to benefit the corn crop, which will be very small. The cotton is excellent. Very few boll weevils are present. Sugar cane is very short due to the continued dry weather.

The rand-pollinated ears in the selfing and crossing plats were harvested the third week in August. The number and size of these ears are greatly reduced this year due to adverse weather conditions. The early planted F_1 crosses, selected for shuck protection, were harvested the last week in August and nung up to dry. Weevil and worm damage will be determined later. Although the yield will be light, the F_1 crosses seem to be the highest yielders in nearly every instance.

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler). No report.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer). No report.

AWOI

Agricultural Experiment Station, Ames (M. T. Jenkins). No report.

Agricultural Experiment Station, Ames (Investigations of Crown Rust of Oats, S. M. Dietz). No report.

Iowa State College, Ames (Barberry Eradication, M. A. Smith). (Sept. 2) The original survey of Ringgold County was completed August 26. This was the 99th county of the State to be covered by the original survey, and its completion finished the original survey of the State.

Two squads of men have been making a second survey of Mitchell and Allamakee counties since August 20. A third squad has just started the second survey of Lyon County.

Dr. F. E. Kempton, pathologist in charge of barberry eradication, and the State Leader inspected the large area of escaped bushes near Redding, Ringgold County, August 7. This area has been under close observation since April, and considerable data have been obtained relative to the spread of stem rust from the barberry bushes of this area to nearby grains and grasses.

County fairs started August 1. Demonstrations were placed at ten county fairs in August, and it is planned to place an equal number over the State during the month of September.

ILLINOIS

Funk Bros. Seed Company, Blocmington (Corn Root and Stalk Rot Investigations, J. R. Helbert). No report.

Post Office Building, Urbana (Barberry Eradication, G. C. Curran). (Sept. 3) Despite frequent and heavy rains, the original survey has progressed with but little loss of time, six counties having been surveyed this year to September 1. The survey of several others will be finished within the next 15 days.

The resurvey of Kane County has been completed. Several areas of escaped bushes which were missed in the original survey have been located on resurvey. In Dupage County resurvey has been started, and, as in Kane County, a large percentage of sprouting bushes is being found.

The large area of escapes near Gurnee in Lake County, with the exception of a small portion reserved for experimental chemical work by Noel F. Thompson, was treated with salt. About 29,700 pounds of salt were used to treat 4,000 bushes.

A barberry-eradication demonstration was placed on the Illinois State Department of Agriculture fair circuit. The Lee County fair at Amboy, which opened on August 12, was the first on the circuit. It was next shown at the Central States fair at Aurora, August 16 to 23, where it attracted a great deal of attention. A large number of leads to barberry plantings which had been overlooked in the first survey were received at this fair. Field men arranged county fair demonstrations in Knox, Henderson, Hancock, and McDonough counties in August.

INDIANA

Purdue University Agricultural Experiment Station, Lafayette (Corn Root, Stalk, and Far Rots, G. N. Hoffer). No report.

Purdue University Agricultural Experiment Station, Lafayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains). No report.

College of Agriculture, Purdue University, Lafayette (Barberry Fradication, W. E. Leer). No report.

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer). No report.

MICHIGAN

Agricultural College, Fast Lansing (Barberry Eradication, W. F. Reddy). (Aug. 27) The Michigan field force of 37 scouts has completed the original survey in eight counties since July 1. Much valuable farm land is found in the "thumb" of Michigan. The farmers of this section of the State have suffered constant and heavy losses from rust. Without exception they believed that the barberry was an agent in spreading the rust, but they were sincere in their "carefully drawn conclusions" that their respective counties contained no barberries. However, over 30,000 barberries have been removed from this "free-from-barberry" area since July 1.

This has been an ideal educational season in Michigan. The rust attacks are localized, and no rust has been found which is not easily associated with a barberry planting. A short field trip causes the "ardent wet-weather believer" to admit that it looks as if the barberry had something to do with the rust this year.

All of the barberry scouts are convinced that the 49,211 form letters and bulletins mailed to farmers have served an excellent purpose. It was fortunate that the form letters were distributed the week previous to the arrival of the men in the respective counties.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson). No report.

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney). No report.

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker). No report.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt). No report.

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman). No report.

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander). No report.

GRFAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger). (Sept. 3) During the latter half of August, conditions were favorable for the development and maturing of the grain sorghums and broomcorn. From present indications the yields of the sorghums and broomcorn will be much above average. The date-of-seeding plats are being harvested as they ripen, and this week many of the varietal plats will be ready to harvest.

Today 10 plats of Acme brocmcorn of the rate-of-seeding and method-of-spacing experiments were harvested and threshed. It is the writer's opinion that some of these rate-of-seeding plats will produce the highest yields ever obtained on this Station. The brush will be hurl or warehouse brush.

Mr. H. N. Vinall of the Office of Forage Crop Investigations, and Mr. D. L. Jones, Superintendent of the Chillicothe (Texas) Substation, were station visitors on September 1. Both men were especially interested in the grain-sorghum and broomcorn investigations.

Maximum temperature for the last half of August, 102° on the 24th; minimum, 65° on the 25rd. Precipitation for the last half of August, 0.41 inch.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker). (Aug. 20) The following yields were obtained from winter wheat varieties and strains sown in replicated rod rows in the cooperative nursery at Manhattan, Wans., in 1924:

Selection	Kans.	Ст		۸٠ ٢	Viold
No.	No.	C.I.	Variety or strain	Awnless or Bearded.	Yield (Bu. per A.)
	7).7				
	343	6251	Blackhull		19.4
		6163 6688	*Shepherd		17.9
214271		. ,	Mosida Marquis X Kanred	۸ ،	17.7
	2523		*Forward	outstanding	17.0
214383			Marquis X Kanred	4 ε Σ <mark>΄</mark>	17.0
216279	e	er y	P1068 X Preston	B .	16.8
216288			Do Do	- B	16.8
214618			Marquis X Kanred	À	16.5
214214	7	in the second	Do Do	A	16.5
03 (000	382	6206	Kharkof		16.4
216088 214211		6937	Kanmarq	A	16.4
216318			Marquis X Kanred	A .	16,4
210)10	62		P1068 X Preston *Indiana Swamp	В.	16.3 16.2
	2048	5797	Altera		16.1
214574	78	5191	Marquis X Kanred	A	16.1
214646		need a too and	Do Do	Δ	15.9
			Turkey X Harvest King		15.9
214868		, q	Kanred X Marquis		15.9
	5417	5880	P1068	i e die j	15.9
215665		,	P1066 X Marquis	A	15.8
	0.53.73	5408	*Triplet		15.8
214873	2517	;	*Marmoth Red	۸	15.8
214873			Kanred X Marquis	. A	15.7 15.6
214021			Marquis X Kanred Turkey X Harvest King	A	15.6
	2515	6941	Berkeley Rock	The state of the s	15.5
215531	2010		P1066 X Marquis	A	15.4
214199			Marquis X Kanred	A	15.4
215415			P1066 X Marquis	Α	15.4
	2415	5879	P1066	•	15.4
	322	6250	Nebraska No. 60		15.4
22.501.2	2525	•	Michikof		15.3
215043 214456			Kanred X Marquis	A.	15.2
214450		100	Marquis X Kanred Fulcaster (Average of	A a backs)	15.2 15.2
216222			Pl068 X Preston	B	15.1
214758			Marquis X Kanred	Ã	15.1
			*Portage		15.0
214468		′ +	Marquis X Kanred	A	15.0
		6390	*Red Reseca		15.0
	2448		Minturki		14.9
214204	7 - 0		Marquis X Kanred		14.9
22 6 26 2	387	*	Turkey X Harvest King	В	14.8
216262			Plo68 X Preston Kanred (Average of 25		
			Minard (Average of 25	OLCONS)	14.4
	2472:	5549	Kharkof (Mont. No. 36)		14.3
	353		Hussar		14.2
	2382		Improved Turkey		14.0
	2156		*Fultz	,	13.8
	19	6199	*Harvest Queen		13.6

C.I.	Variety or strain	Awnless or Yield Bearded. (Bu. per A.)
1558	Turkey . *Minhardi Iobred	13.4 12.8 12.6
6211	*Zimmerman	11.9
1583-30	Karmont	11.6
		11.5
6249		11.4
	Sevier	11.3
	Sherman	11.0
	Farly Kanred	11.0
	Padui	10.8
	*Buffum No. 17	9.8
	No 1558 6211	No. Variety or strain 1558 Turkey *Minhardi Iobred 6211 *Zimmerman 1583-30 Karmont 5147 *Nebraska No. 28 6249 Nebraska No. 6 Sevier Sherman Farly Kanred Padul

* Soft winter wheats.

The above list is very incomplete and includes only a few of the higher yielding and better known sorts. The winter X spring crosses did not do so well in comparison with Kanred checks as in 1922 and 1923. The three-year average shows, however, that there are 35 of these strains on hand which are equal or superior to Kanred in yield. These high yielding strains will, of course, be continued, while a large number of the less promising strains will be dropped.

A number of the winter X spring crosses were tested in comparison with Kanred and other standard varieties in nurseries at Hays, Colby, and Mankato, Kans., Lincoln, Nebr., Denton, Tex., Ames, Ia., St. Paul, Minn., and in some of Dr. E. B. Main's leaf-rust nurseries in the eastern and southern States. The 1924 yield data are not yet available from all these stations, and space permits only brief statements from each station.

Yields of awnless winter X spring crosses grown in single and replicated rod rows at Hays, Kans., and in replicated rod rows at Mankato and Colby, Kans., and Denton, Tex., follow:

Selection	1	Awnless or	Yield
No.	Name	Bearded	(Bu. per Acre)
77. 77. /0.			
Havs, Vans. (Single			\ 7~ #
	seeded 10 days ea		
	Kanred X Marquis		37.1
214534 N	Marquis X Kanred		34.2
215398	Kanred X Marquis		34.2
214976	Do Do	+ 2%	31.2
214646 N	Marquis X Kanred	•	28.7
	Kanred X Marquis		27.1
Hays, Kans. (Replic	cated rod rows):		
	P1068 X Preston	В	52.7
216145	Do Do	В .	47.0
215978	Kanred X Preston	В · · ·	44.4
	P1068 X Preston	.≫B= . `	43.6
	Marquis X Manred	A	43.6
	P1068 X Preston	В	43.4
	Kanred (Average o		. ~
*		,	

Selection No.	<u>Name</u>	Awnless or Bearded	Yield (Bu. per Acre)
Mankato, Kans.:			e a
214505	Marquis X Kanred	A .	53.4
214615	Do Do	, A	53.0
214623	Do Do.	A	51.4
214572	Do Do	A	51.1
214536	Do Do	A	50.8
216189	P1068 X Preston	В	50.2
214482	Marquis X Kanred	A	50.2
214509	Do Do	<u>A</u>	50.1
214574	Do Do	A	50.1
215037	Kanred X Marquis	A-	50.1
216380	Marquis X Kanred	3e. B	50.0
215447	P1066 X Marquis	В	49.9
214497	Marquis X Kanred	A	49.9
214624	Do Do	A ***	49.8
214458	Do Do	A ·	49.1
214204	Do Do	A	48.6
215395	P1066 X Marquis	A	48.3
216197	P1068 X Preston	В	47.4
	Kanred (Average of	14 checks)	46.9
Colby, Kans.:	·	* **	1 1/4 1/4
21,6254	P1068 X Preston	· B	38.9
	Kanred (Average of	7 checks)	38.5
216269	P1068 X Preston	В	38.1
215978	Kanred X Preston	В	37.1
216318	Plo63 X Preston	В	37.1
`216262	P1068 X Preston	В	36.9
216322	Do Do	В	35.5
216031	Wanred X Preston	В	35.1
214873	Kanred X Marquis	A	34.9
		10 1 W	
Denton, Tex.:		Professional Control	* · · ·
	Marquis X Kanred	A	42.7
	Kanred X Marquis	A	41.9
	P1068 X Preston	В	41.2
	Kanred (Average of	7 checks)	40.7

It is interesting to note that at Hays and Colby the bearded selections lead in yield, while at Manhattan, Mankato, and Denton the awnless strains do not appear to be at any disadvantage.

A. F. Swanson, inccharge of cereal experiments at the Hays Branch Experiment Station, was a visitor at Manhattan on August 9.

Weather and Crcp Conditions in Kansas, August 1 to 15.

The first week of August was characterized by abnormally warm weather with frequent local showers; temperatures from 100° to 108° were reported on several days in central and western Kansas. Corn was reported as in good to excellent condition in the eastern part of the State, but in the southern two-thirds the condition of the corn crop was reported as only fair to poor.

Wheat threshing returns continue to exceed preharvest expectations, and the latest estimate of the total crop for the State is about 155,000,000 bushels.

In the second week of August abundant rains fell in most parts of the State. Temperatures of 100° and higher were recorded over the western twothirds of the State on one or two days. Corn condition was rated as good to excellent in nearly all the eastern half of the State. Dry, hot weather has done some damage to the corn crop in several northcentral and western counties, where it was reported to be in poor condition.

Hays Branch Experiment Station, Hays (A. F. Swanson). (Sept. 1) The rainfall for the month has been light, but sufficient to keep row crops such as sorghums growing. At times the temperature has been high with brisk winds prevailing. These two climatic factors proved too severe for the corn crop.

The first sorghums were harvested today. This is about 10 days later than in normal years. Feterita and dwarf kafirs probably will be the outstanding grain sorghums.

The feed crop over this section will be short this year. Consequently, a larger number of cattle will be moved to the market a little more freely than usual. There is a tendency for the farmers to put in a large acreage of wheat again.

Miss Charlotte Elliott, associate pathologist, Bureau of Plant Industry, U. S. Department of Agriculture, was a recent visitor at Hays. Miss Elliott collected a large number of leaf specimens of sorghums affected by some form of bacterial disease. There is a rather wide range of susceptibility in the various sorghum varieties. Hybrid material between Pink kafir and Dwarf Yellow mile was found to be heavily infected.

COLORADO

Akron Field Station, Akron (F. A. Coffman, formerly in charge). (Sept. 6) The following yields, in bushels per acre, were obtained from the different oat varieties grown on fallow and on corn ground at the Akron Field Station in 1924. These oat yields are the lowest obtained in 17 years of experimentation.

Variety	C.I.	:	Fallow 2	Ave.	7	rn grou 2	and Ave.	Varietal average.
Burt Burt X Sixty-Day Albion Wancta Burt (Sel. 7-5020- Albion (Sel. 2-2-) Fulghum Colburt Burt (Sel. 7-5020- Kherson Kherson (Sel. 8-1- Swedish Select	708 2019 -44) 459	15.2 10.1 12.1 7.8 10.1 10.1 6.6 8.2 6.2 8.6 9.4 Faile	14.4 15.6 13.3 7.0 6.6 10.9 5.9 7.8 6.6 5.5 7.4	14.8 12.9 12.7 7.4 8.4 10.5 6.3 8.0 6.4 7.1 8.4 harvest	12.1 11.3 7.0 9.4 9.4 5.9 9.0 7.4 5.1 6.2 2.6	10.5 7.4 8.2 10.1 7.8 6.2 8.6 5.1 8.6 5.9 2.6	11.3 9.4 7.6 9.8 8.6 6.1 8.8 6.3 6.9 2.6	13.1 11.2 10.2 8.6 8.5 8.3 7.6 7.2 6.7 6.6 5.5

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren). (Sept. 1) In the month of August a resurvey was made of the counties in western Colorado. Throughout the valleys and on the mesas considerable grain is produced. A trace of rust was found on spring wheat in the southern counties.

Sprouting bushes and some original bushes were found in the following counties: Delta, Chaffee, Conejos, Rio Grande, Pueblo, Montezuma, Mesa, and Fremont. One wild area covering several farms was found in the vicinity of Montrose, in Montrose County.

From August 13 to 17 Dr. F. E. Kempton, pathologist in charge of barberry eradication, and the writer inspected the wild areas of native barberries, <u>Berberis fendleri</u>, in Archuleta and La Plata counties. An inspection trip also was made of the wild area of <u>Berberis vulgaris</u> east of Canon City.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague). (Sept. 1) Weather continues hot and dry. The dry weather has caused the corn to tassel much shorter than last year. The leaves are firing, and unless the drought is quickly relieved corn yields will be greatly reduced.

Harvesting was finished August 14. Both winter and spring wheats are of high quality. Oats and barley were somewhat chaffy, although the yields were rather high.

Ground is being prepared for fall seeding, although seeding will have to be delayed, except on fallow, until it rains.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel). No report.

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bülger).
No report.

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel).
No report.

Agricultural Experiment Station, Agricultural College (Barberry Fradication, G. C. Mayoue). No report.

Dickinson Substation, Dickinson (R. W. Smith). (Sept. 2) Cool, dry weather prevailed during most of August, with a few days of hot weather during the past week. The total precipitation for the month was 0.77 inch, which fell during the early part of the month. The extremes of temperature for the summer occurred in the past week, with a maximum temperature of 102° on August 28 and a minimum of 30° on September 1.

The dry weather and a few hot winds have hastened the ripening of corn. Rain at this time would greatly benefit the crop. Frost on September 1 injured the crop on low lands, but that on the Substation was not seriously injured. Dent corn has barely reached the milk stage, while flint is a

little nearer maturity. Severe frosts at the average date for this section would find most of the corn still green.

The dry weather has favored throshing, which began at the Substation August 28 and became general in the county by September 1. Varietal plats of wheat, rye, cats, and barley have been threshed, and the threshing of rotation plats is under way. Yields of all varieties were fairly good except that durum wheat, which usually outyields the hard red spring varieties here, fell below the latter in yield. The comparatively low yields of durum varieties were caused by a serious infection of root rot which affected all durum varieties, and, to a small extent, the hard red spring varieties. Pust was not a serious factor affecting the yields at the Substation this year.

The yields of 30 varieties of spring wheat grown in quadruplicate plats and of 8 varieties grown in duplicate plats are given below. The yields of other crops will be given in a later report. Out yields averaged 58.7 bushels per acre for all varieties, ranging from 35.2 bushels for Liberty Hull-less to 69 bushels per acre for Gopher. Beloglina winter wheat, protected by standing cornstalks, yielded about 32 bushels per acre, which is very unusual for this locality.

Visitors at the Substation during the last half of August included R. A. Oalley and H. L. Westover of the Office of Forage Crop Investigations, and J. A. Clark, J. E. Martin, F. A. Coffman, and J. C. Brinsmade of the Office of Cereal Investigations.

Yields of spring wheat varieties grown in quadruplicated 56th-acre plats on the Dickinson Substation in 1924:

<u>Variety</u>	C.I.Mo.	Acre yield (Bu.)
Common: Preston Progress Marquis X Kota Do Do Kota Marquis X Kanred Marquis Ruby Quality Power Fife Redsask Red Bobs Red Fife Marquis X Kanred Kitchener Haynes Bluestem Hard Federation	3081 	
Durum: Pentad (D-5) Monad Arnautka Acme Nodak	3322 3320 6881 5284 6519	24.0 22.7 21.7 21.3 21.0

<u>Variety</u>	C.I.No.	Acre yield (Bu.)
Durum (Con'd):		•
Kubanka Nc. 8	4063	20.7
E-99	1440-99	20.6
K-74	1440-74	20.3
Kubanka	1440	20.0
Mindum	5296	18.5
Kahla	5529	17.8
K-144	-	17.6
Peliss	1584	15.8
	each of the follo	owing)*
<u>K-15</u> 2	1440-132	27.0
D-146	-	26.6
Ulka	7347	25.1
Marquis	3641	24.1
Kota	5878	22.9
Kota X Kanred	-	19.7
Haynes X Emmer	-	15.2
Ruby X Marquis**	-	10.6

* Yields not entirely comparable with those of quadruplicated plats.
** Only 1 plat.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.). (Sept. 3) The weather during the last half of August was generally favorable for crop development.

Flax sown May 15 in the date-of-seeding and tillage experiment was harvested August 23. Most of the varieties in the flax varietal plats were harvested August 23 and 28. More than half of the rows in the flax nurseries were harvested August 26-28.

The wheat, oats, and barley from the varietal plats will be threshed this week if the weather permits.

A Cereal Investigations' exhibit from the Northern Great Plains Field Station is being shown this year at the Missouri Slope Fair. The best representative varieties of flax and of common and durum wheat; the results of mixed cropping of flax and wheat; and the diseases of flax are being emphasized.

Maximum temperature for the last half of August was 96° on the 28th; minimum, 38° on the 31st. Precipitation, 2.35 inches.

Mr. J. A. Clark was here August 18-21 to attend to the harvesting of his wheat hybrid material; Dr. A. W. Henry visited the Station August 20 to investigate rust on flax; and Mr. F. A. Coffman was a visitor August 23-25 in the interest of oat investigations.

MONTANA

Judith Basin Substation, Moccasin (R. W. May). (Sept. 2) Since the middle of August, dry weather and hot winds have ripened grain very rapidly. As a result, practically all of the small grains under the Cereal Project in both plats and nursery rows have ripened and have been harvested. Latematuring varieties of grain will yield very low this season, because of

premature ripening. It is not uncommon under our conditions for late-maturing varieties to yield low.

Corn still remains very backward, though it made considerable growth during the recent hot weather. It now is in need of rain. It appears probable that many of the corn varieties will reach the glazed stage before frost.

The winter wheats from the nursery rows have been threshed, but the seed has not been cleaned or weighed. The winter wheats in plats have not yet been threshed, though it may be done this week. It will be necessary to thresh and weigh the winter wheats before fall seeding can be done.

Winter wheat sown before the middle of August in the vicinity of the Substation has emerged and made good growth. Many of the fields show green at a distance.

The precipitation recorded in August totals 1.31 inches as compared to 1.46 inches as the average for the month. The precipitation recorded from January 1 to September 1, 1924, totals 9.79 inches as compared to 12.71 inches as an average for this period.

Visitors at the Substation included Dr. R. A. Oakley of the Office of Forage Crop Investigations, and Mr. I. J. Jensen of the Montana Agricultural Experiment Station.

State College of Agriculture, Bozeman (Barberry Fradication, W. N. Christopher). (Aug. 20) The following are the results of observations made on fields designated as rust-observation stations in each county listed, supplemented by estimates made from other fields.

<u>rate</u> .	County.	Number fields examined.	Average per- centage plants infected.	Average percentage of rust.
3-11-24	Carter	10	35.2	7.7
8-1-24	Wibaux	3	42.2	2,2
8-9-24	Richland	14	70.0	10.0
8-14-24	Sheridan	10	99.0	3.2
8-14-24	Daniels	10	100.0	6.8
8-1-24	Rocsevelt	7	27.0	1.6
8-1-24	Fallon	9	42.1	3.5
3-7-24	Valley		13.6	2.4
	Total	. 71	66.1	4.7

In addition, observations made in Flathead, Lake, Fergus, McCone, Gallatin, Madison, and Park counties failed to substantiate reports of the presence of rust in these counties. Harvesting is well under way over the entire State. Little damage is expected from rust this year.

WESTERN BASIN AND COAST AREAS (North to Weat and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe). No report.

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford). No report.

OREGON

Sherman County Branch Station, Moro (D. E. Stephens). (Sept. 1) Dry weather has continued throughout eastern Oregon; moisture conditions will not be favorable for sowing winter wheat without several inches of rain.

The following tables give the yields obtained in the winter-wheat and spring-wheat varietal experiments this year. The winter wheats were sown in triplicate twentieth-acre plats and the spring wheats in four fortieth-acre plats.

Acre yields, in bushels, of winter-wheat varieties grown at Moro, Oreg., in triplicate twentieth-acre plats, in 1924:

Va ni o tr	: C.I.No.:		Acre yie	ld (Bu.)
Variety	: 0.1.10.:	1		3 :	Ave.
	· · · · · · · · · · · · · · · · · · ·				
Hybrid 128	4512	25.7	21.8	17.2	21.6
Kharkof	1442-12	22.3	15.0	23.7	20.3
Turkey.	1571	25.7	18.3	16.7	20.2
Alberta Red	2979	16.0	21.0	21.3	19.4
Blackhull	6251	19.7	15.7	21.7	19.0
White Odessa	4655	15.7	21.7	~	18.7
Mosida	6638	16.7	16:3	22.7	18.6
Turkey (Sel. W)	7365	17.3	20.3	17.3	18.3
Triplet	5408	16.0	16.7	20.8	17.8
Iobred	6934	14.0	21.3	-	17.7
Hybrid 123	4511	21.7	15.7	15.0	17.5
Turkey (Sel. P)	7364	15.3	21.0	16.0	17.4
Kanred	5146	15.0		16.7	17.2
Turkey (Local)	4429	15.3		17.3	17.0
Argentine	1569	14.7		20.7	17.0
Nebraska No. 60	6250	17.7	14.3	18.7	16.9
Sherman	4430	19.3	15.0	16.0	16.8
Turkey X Florence (G326W-1)	-	18.3		-	16.7
Argentine Sel.	1569-2	14.3		-	15.8
Hussar	4843	12.3		_	15.8
Fortyfold	4156	15.7	15.2	16.2	15.7
Crimean Sel.	3055	16.0		13.0	15.1
Martin	4463	15.0	14.7	-	14.9
Sevier No. 101	-	-	11.3	8.7	10.0
Turkey X Florence (G326W-3)	_	-	-	14.7	-
Plo68 X Preston (Ks. row 634)	-	-	-	17.2	-
Turkey X Bearded Minn. No. 48	-	~	-	12.0	_
Federation	4734	-	-	17.7	-
Fortyfold X Hybrid 128	1998A4-3	-	-	22.3	-
Kanred X Marquis 1718B-2-11-5	-	-	-	21.5	-
Sevier No. 59		23.2	-	-	-
Ridit	6703	-	-	19.0	-

Average acre yields, in bushels, of spring-wheat varieties in four fortieth-acre plats at Moro, Oreg., in 1924:

Variety	C.I.No.	Acre yield (Bu.)
Federation	4734	21.0
Hard Federation	4733	20.8
Onas	6221	20.7
Baart	1697	20.6
White Federation	4981	20.4
Major .	4984	20.3
Bunyip	4166	20.1
Currawa	4982	19.3
Boadicea	6220	18.5
Bobs	2826-1	18.5
Sunset	4728	18.2
Firbank	4169 .	18.2
Quality	6607	16.7
Pacific Bluestem	4067	15.5
Redsask	6794	15.0
Red Bobs	6255	14.7
Marquis	4158 -	. 12.8
Little Club	4066 ·	12.5
Average		18.0

Mr. B. Bayles, in charge of the cereal nursery at Moro, reports that several of the white-kerneled selections from the cross Pl068 X Preston, made at Manhattan, Kans., have done particularly well in the nursery at Moro in the last two years. These selections resemble Turkey except that the kernels are white. Some of the newer Moro Station hybrid selections are also giving good yields.

The following table gives yields of the 25 highest yielding varieties of winter wheat grown in a nursery trial including more than 300 varieties or selections:

Acre yield, in bushels, of the 25 highest yielding winter-wheat varieties grown in three series of single rod rows at Moro, Oreg., in 1924.

<u>Variety</u>	Average acre yield (Bu.)
Farly Arcadia X Hd. Fed. (1992A3-5-4) Do Do (1992A3-6-3)	28.9
Hybrid 128 (check)	27.9
Fortyfold X Hybrid 128 (1998A2-2)	26.9
Do 'Do (1998A1-1)	26.1
Do Do (1998A1-4)	25.9
Fortyfold (Check)	25.4
Plo68 x Preston (Ks. 5903-9-10)	25.1
Hybrid 128 (check)	25.0 24.8
P1068 X Preston (Ks. 5914-8-2)	
Farly Arcadia X White Fed. (1991A-3-2)	24.7
P1068 X Preston (Ks. 5903-9-4)	24.7
Hybrid 128 X Fortyfold (1997A2-3)	24.6
Fortyfold X Hybrid 128 (1998A5-1-1)	24.5 24.4
Hybrid 128	
P1068 X Preston (Ks. 5896-3-6)	24.3
Fortyfold X Hybrid 128 (1998A-3-3)	24.1
P1068 X Preston (Ks. 5896-3-7)	23.8
Red Club	23.7
Hybrid 128 (check)	
White Odessa Sel:	23.5
Kharkof (1442-12) (check)	4)•)
P1068 X Preston (Ks. 5896-3-8)	27.7
Do Do (Ks. 5914-24-1) Do Do (Ks. 5647-2÷2)	23.3
Do Do (Ks. 5647-2-2)	23.2

Following are the yields of the more prominent commercial varieties of winter wheat and a few promising hybrid selections grown in the nursery.

Average acre yield, in bushels, of commercial winter-wheat varieties grown in three series of single rod rows at Moro, Oreg., in 1924.

Variety	C.I.No.	Acre yield (Bu.)
Hybrid 128	4512	. 24.4
Crimean Sel. 389-5	_	23.2
Triplet	5408	22.4
Sevier Nc. 59	_	21.6
Kharkof (Hays No. 2)	6686	21.0
Blackhull	6251	20.8
Turkey (local)	4429	20.7
Turkey X Florence (G320W-8)	-	20.6
White Odessa	4655	20.6
Nebraska No. 60	6250	20.2
Mosida .	6688	20.2
Fortyfold	4156	19.7
Hybrid 143	4513	19.5
Pacific Bluestem	4067	19.3
Turkey X Florence (G326W-3)	-	19.2
Alberta Red	2979	18.8
Turkey	- 1571	18.7
Kanred X Marquis (1718B2-11-5)	-	18.7
Hybrid 123	4511	18.6
Crimean Sel.	1532	18.6
Turkey X Florence (G326W-1)		18.0
*Ridit	6703	17.5
Turkey (1571C purple)	7364	17.1
Do (1571C white) .	7365	16.9
Iobred	6934	16.7
*Kharkof	1442-12	16.5
Argentine	1569	16.5
Sherman	4430	16.2
Hussar	4843	16.1
Turkey (15710)	7363	16.1 15.6
Kanred	5146	15.5
Federation	4734 1569-2	14.6
Argentine Sel.	4463	14.1
Martin	4651	14.1
White Odessa	1558	13.8
Turkey Crimean (3055A)	7366	13.5
Hybrid 63	7,00	10.8
11y 01 10 0)	_	10.0

^{*} Average of five checks.

^{**} Average of six checks.

CATITEORNIA

Biggs Rice Field Station, Biggs (J. W. Jones). (Aug. 30) The weather during August has been cooler than normal. The rice crop, however, has made a fairly good growth. Considerable white water grass has appeared in nearly all commercial fields during this month, but I am quite sure that rice yields will be higher this year than they were last year.

At the station the early and midseason varieties are now fully headed, and the late varieties are beginning to head. With favorable weather, harvest should begin about September 25 - a few days earlier than last year.

Local papers state that Early French rice (Italian) was being harvested last week on the Dodge Land Company. This variety and Korean are early rices with weak straw, poor yielding ability, and I think of no commercial importance.

The water for irrigation purposes is holding up fine - much better than was hoped for earlier in the season.

Indications are that the growers will receive a good price for their rice this fall. One Biggs grower has contracted 10,000 bags, roadside, at \$3.00 per hundred.

E. L. Adams of Chico, formerly of the Office of Cereal Investigations and Superintendent of the Biggs Station, has been chosen president and manager of the Rice Growers Association of California, with headquarters at Sacramento.

University Farm, Davis (V. H. Florell). No report.

Agricultural Experiment Station, Berkeley (F. N. Briggs). No report.

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations Bureau of Plant Industry, U. S. Dept., of Agriculture (NOT FOR PUBLICATION)

Vol. 16 September 20, 1924 Personnel (Sept. 11-20) and Field Station (Sept. 1-15) Issue

No. 22

PIRSONNEL ITEMS

Dr. C. R. Pall, senior agronomist in charge of cereal investigations, returned to Wasnington Thursday, September 11. In visiting the agricultural experiment stations of Minnesota, Wisconsin, Illinois, and Indiana in company with Dr. F. E. Kempton, pathologist in crarge of barberry eradication, a special study was made of the progress of barberry eradication, especially of the results that are being obtained in the second complete survey of counties covered by the original farm-to-farm survey in the early years of the eradication campaign. In many of these counties, surveyed by relatively inexperienced men, some bushes were discovered. A tabulation of the results from 50 counties completely surveyed by the second survey shows that 7.3 per cent of the original bushes were not found in the first survey. A large proportion of these bushes, however, had been cut down by the owners before the survey assistants arrived. As most of them had not had time to sprout, their locations were very easily overlooked. They are being found now on second survey because vigorous sprouts have developed and betray the spcts where they originally stood.

The prospect for seed corn of high quality from the 1924 crop is anything but good. Throughout much of the corn belt spring and summer rains, low temperatures, and vigorous weed growth have held back the development of the corn and there is every prospect that frost may overtake a considerable proportion of it before it is fully mature. In general, the crop becomes better as one progresses westward from Ohic to Nebraska and Kansas. Department and State officials are using every effort to encourage the saving and careful curing of the test available supplies for seed.

Dr. F. E. Kempton, associate pathologist in charge of carberry eradication, returned September 19 from a two-months' field trip. He visited various sections of the States in which the campaign is in progress, and reports satisfactory progress. The first survey of Colorado, Wyoming, Nebraska, North and South Dakota, Minnesota, Iowa, Wisconsin, and Indiana will be completed this field season. This will leave for the original survey a number of counties in southern Illinois, southeastern Ohio, the northern part of the southern peninsula of Michigan, a few counties in its northern peninsular, and a portion of eastern Montana.

An outbreak of stem rust on wheat near Silney, Montana, was definitely traced to a badly infected purple barberry bush. Another similar local outbreak in Carbon County was traced to sprouts of bushes out off a few years ago.

Stem rust of wheat in the barberry-eradication area was not serious except in a few localities. In many local areas barberries overlooked in the first survey were located directly through these rust outbreaks. In others a second survey was made of the area from which the stem rust appeared to originate, and in every case a number of bushes have been found. A very definite relationship between infected common barberries and stem-rust outbreaks on oats has been observed this season.

Inspections of areas of escapes in the various States show that salt and herosene, when properly applied, are very effective in clearing these areas of bushes and seedlings. However, sprouts from bushes that have been dug are more difficult to treat than bushes that have not been disturbed.

Areas of <u>Berberis fendleri</u> and <u>Mahonia repens</u> in southern Colorado were visited. Very little grain was to be found near by. No stem rust was observed on this grain.

A second complete survey of a number of counties covered in the original survey in the first part of the campaign shows that of the infected barberries treated about 83 per cent were found on the original survey while about 17 per cent were found on second survey.

A large percentage of bushes found on second survey were those cut off but not completely eradicated by property owners who made no recorder report of their location. The bushes missed in the first survey have since sprouted and so were easily located in a second survey. As a rule, fewer bushes were overlooked in the counties covered in original survey later in the campaign and second-surveyed this year. The number is sufficiently large, however, to make necessary a second survey of many counties.

B. Y. Morrisch. in charge of the Eerberis garden at Bell, Maryland, left Washington September 13 for Rochester, N. Y., where he will study collections of Eerberis and related plants in Highland Park. Mr. Morrison also will go for the same purpose to the Arnold Arboretum at Jamaica Plain, near Boston, Mass. He will return to Washington about October 15.

Frederick/D. Richev, agronomist in charge of corn investigations, returned September 12 from a trip in the Middle West in the interests of corn investigations. On September 16 Mr. Richey left Washington to spend three or four days at Ithaca, N. Y., in conference with Dr. L. F. Randolph, associate cytologist of the Cffice, and with officials of the Cornell University Agricultural Experiment Station with reference to cooperative corn investigations.

Dr. W. H. Tisdale, pathologist in charge of smut investigations, left Washington September 20 for St. Louis, Mo., and Granite Gity, Ill., where he will sow wheat in the flag-smut experiment plats. He also will confer with Federal and State agricultural experiment station workers in Kansas and Iowa concerning the corn-smut situation.

Dr. Tisdale will next proceed to points in Oklahoma, Texas, and New Mexico, to study kernel smut of milo. Previous to 1923 milo was considered nighly resistant to or practically immune from covered kernel smut. In 1923 reports of the occurrence of this smut in milo were received from Kansas, Texas, and New Mexico. In some cases fairly high percentages were reported. Reports have come from New Mexico and Texas again this seasons.

We will be very glad to have those in the milo territory who are interested in this problem to watch out for hernel smut and report findings to the Office of Cereal Investigations. We also would appreciate specimens both of smutted and normal heads.

VISITORS

Dr. W. H. Weston, formerly in charge of the investigations of downv mildew of cereals, who has spent the summer in research at the Tropical Plant Research laboratory in Cuba, was all Office visitor the week of September 15.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Chemical Fradication of the Common Barberry," by <u>Noel F. Thompson</u>, was submitted August 12 for publication as a Department Circular.

Galley proof of article, entitled "Taxonomy," by Carleton R. Ball, for publication in the Journal of the American Society of Agronomy, was read September 18. (This is the first paper in a symposium held under the joint auspices of Section O, Agriculture, of the American Association for the Advancement of Science, and the American Society of Agronomy, at Cincinnati, Ohio, on December 28, 1923.)

Galley proof of article, entitled "Stripe Rust (<u>Puccinia glumarum</u>) of Cereals and Grasses in the United States," by <u>Harry B. Humphrey</u>, <u>Charles W. Hungerford</u>, and <u>Aaron G. Johnson</u>, for publication in the Journal of Agricultural Research, was read September 18.

Department Circular 324, entitled "Markton, an Oat Variety Immune from Covered Smut," by T. R. Stanton, D. E. Stephens, and E. F. Gaines, was "received from the Government Printing Office September 15. (In cooperation with the Oregon and Washington agricultural experiment stations.)

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs). No report.

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor). No report.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. F. Love). No report.

HUMID MISSISSIPPI VALLEY STATES (South to Morth)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins). (September 17)

The hot, dry weather reported for the month of July continued during the month of August and became more intense towards the end of the month. The maximum reached 100° on the 24th, and 101° on the 25th. The average minimum for the month was 73° F. which was the same as for the month of August of last year.

The precipitation in August arounted to 1.80 inches. This was slightly more than for July but far below the average for the past 14 years, which was 6.29 inches.

The extreme weather conditions in August reduced the water supply for irrigation purposes to such an extent that much of the rice acreage had to be abandoned, on account of shortage of water from wells, and excessive quantities of sea water in some streams. After closing down for sometime, the irrigation plants decided to continue operations as no relief was in sight, and farmers were asking for water regardless of the salt content. Without water the rice was dying, so the salty water could do no harm. In some cases near the Gulf, the water killed the rice and the canals closed down; however, the majority of the plants more distant from the Gulf continued up to the time to discontinue irrigation. As to what the results will be is only a matter of speculation. It is however interesting to note how well some rice looks that it is claimed has been irrigated for two months with water carrying varying quantities of salt.

In travelling through the southern part of Jefferson Davis parish, the vicinity of Gueydan and in Acadia, fields were noted in the vicinity of Thornwell that probably will yield nothing because of salt water, for the plants were dying while they stood in water. Near Lake Arthur, to the west, many fields were dead, because of lack of water. It is understood that irrigation water, as it is known to contain killing quantities of salt was not being applied. Near Gueydan and in this parish, late rice shows the effect of salt to varying degrees. Some fields have headed very slowly, producing panicles bearing many imperfect and false grains. As a whole, the indications are that the yields will be greatly reduced. Fields containing well water are readily detected by the healthy appearance of the rice.

The station work progressed nicely during August. The greater part of the plats headed, and have commenced maturing grain. The constant sunshine appears to have been beneficial to our plats, as is indicated by the healthy appearance over the entire station.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg). No report.

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler). No report.

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer). No report.

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins). No report.

Agricultural Experiment Station, Ames (Investigations of Crown Rust of Oats, S. M. Dietz). No report.

Iowa State College, Ames (Barberry Eradication, M. A. Smith). No report.

ILLINOIS

<u>Funk Bros. Seed Company, Ploomington</u> (Corn Root and Stalk Rot Investigations, J. R. Holbert). No report.

Post Office Building, Urbana (Barberry Eradication, G. C. Curran). No report.

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer). No report.

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jackson and F. B. Mains). No report.

College of Agriculture, Purdue University, La Fayette (Barberry Fradication, W. E. Leer). No report.

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer). No report.

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)
No report.

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson). No report.

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney). No report.

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker). No report.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt). No report.

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman). No report.

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander). No report.

GREAT PLAINS ARFA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger). (September 17)
The weather of the first half of September was favorable for the maturing of sorghums, and a number of date-of-seeding and varietal plats have been harvested. Most of the broomcorne also has been harvested. By the last of this month most of the grain sorghums should be in the shock. September 6 was Farmers! Day at the Station and about 200 farmers attended and inspected the various projects.

The Woodward County Fair is in progress from the 15th to 18th inclusive. Maximum temperature for first half of September 97° on the 1st;

minimum, 46 on the 12th; precipitation, 0.85 of an inch.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker). No report.

Hays Branch Experiment Station, Hays (A. F. Swanson). (September 16). The weather for the first 15 days of September has been dry, with moderate temperatures. Row crops are maturing nicely, but the yield will be somewhat reduced because of lack of sufficient moisture to make an optimum crop.

The station silos are now being filled. The seeding of wheat will begin in about 10 days. A number of local farmers already have begun, but there is a tendency to delay seeding longer this year than in former years because of the desire to avoid the Hessian fly. At the present time there is no volunteer wheat to carry over the new broad.

The sorghums on the cereal project are being harvested as the different varieties ripen; the crcp is about 15 days later in ripening than normally.

H. N. Vinall of the Office of Forage-Crop Investigations, J. H. Parker and S. C. Salmon, of Manhattan, and Wagner and Stinson of the Garden City and Tribune Sub-stations, respectively, and H. Coles, also of the Garden City Substation, were visitors September 9. Problems relating to sorghums were discussed.

COLORADO

Akron Field Station, Akron (No report).

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren). No report.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague). (September 12)

The following two tables give the yields of winter wheat in the varietal experiments and in the winter-hardiness nursery at the North Platte Field Station in 1924:

Yields of varieties of winter wheat grown in duplicate twentieth-acre plats at the North Platte Field Station, in 1924.

<u>Variety</u>	C. I. No.	Bu. per Acre.
Nebraska No. 60	6250	57.6
Kanred	5146	57.3
Nebraska No. 6	6249	56.9
Newton x Turkey (166 B1-6)	6935	56.3
Turkey (local)	- management date	55.4
Turkey (15710)	7363	55.3
Karmont	6700	55.0
Montana No. 36	5549	54.6
Kharkov		53.3
Nebraska No. 30	7358	53.0
Blackhull	6251	52.4
Sherman	4430	51.8
Minturki	6155	51.6
Hussar	4843	50.6
Be loglina `	1543	46.5
Iobred	6934	43.6
Nebraska No. 28	5l ^l +7	40.3
Awnless Kharkov No. 166		38.0

Yields of varieties of winter wheat grown in the winter-hardiness nursery at the North Platte Field Station in 1924.

Variety C. I. No. : Ave. : : : : : : : : : : : : : : : : : : :	
Kanred 5146 74.1	
Kharkov (Hays No. 2) 6636 72.1 Kharkov (M. C. 2212) 6933 68.7 Minard 6690 66.7 Beloglina 1667 66.5 Newton x Turkey 5935 66.3 Tenmarq 5936 66.0 Karmont 6700 65.7 Kanmarq 6937 65.0 Turkey Sel. (Kans. 1664) 6472 65.0 Turkey Sel. (Minn. 1488) 6152 61.6 Minturki 6155 61.3 Minhardi 5149 60.3 Montana No. 36 5549 59.3 Triplet 5408 59.0 Malakof (Wis. 11.825) 6680 58.3 Nebraska No. 60 6250 55.7 Odessa Padui 6153 54.0 Buffum No. 17 3330 50.1 Blackmull 6251 49.3 Hussar 4843 48.0 Nebraska No. 23 5147 37.9	

A. F. Thiel). No report.

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Fradication, R. O. Bulger). (September 10).

The distribution and location of barberry plantings in South Dakota in 1924 that were overlooked on the original survey, seem to indicate that much more second survey will be necessary. A total of 44 new plantings, consisting of 240 bushes, have been located this year. These bushes have been found in various ways, namely, second rural survey, second city survey, re-survey, and rust inspection trips. The above mentioned plantings were found in 17 different counties.

Approximately 80 per cent of the overlooked bushes were found to have been cut off four or five years ago, at about the time that the original survey was started. Property owners evidently used this method of destroying barberry bushes after they had learned to identify them through the publicity and educational material sent them. Consequently it was almost impossible for the field scouts to locate such plantings in the first survey, unless the property owner gave them this information. The other 20 per cent were missed largely because the first field men did not realize the necessity of so thorough a scouting as has since been found necessary, nor was the presence of seedlings and escaped bushes thought to be very probable in South Dakota at the time of beginning the survey.

While black-stem rust was not present to any great extent in South Dakota this year there were certain areas, however, which showed heavier infection than other sections of the State. The boundaries of these areas were ascertained as nearly as possible and second-survey assignments followed in the counties or parts of counties included in the areas. In one case in Yankton County three large bushes were found as the result of tracing the severity of the rust to them.

Second-rural survey has been completed to date this year in 4.4 counties with the results as indicated below. Second-nity survey has also proven very effective in locating missed bushes. The results of the various methods of locating missed barberry bushes are as follows:

County	Properties	Bushes	How Found
Beadle -	2	2	Second city survey
Bon Homme	2	2	Resurvey
Brown	5	12	Second city and rural surv
Clark	2	9	Second rural survey
Clay	4	2.2	Resurvey
Codington	4	6	Second rural survey
Davison	2	3	Second city survey
Day	1	5	Rust inspection trip
Edmunds	1	7†	Rust inspection trip
Faulk	3,	109	Second rural survey
Hanson	í	1	Second city survey
Kingsbury	- 3	4	Second city survey
Lincoln	í	8	Rust inspection trip
Minnehaha	5	3 1	Second city survey
Potter	ì	8	Rust inspection trip
Sanborn	2	2	Second city survey
Yankton	5	15	Second rural survey
Total	##	240	

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. F. Brentzel) (September 11). Much of the flax in the experimental plats has been harvested. The later maturing varieties have not been harvested. On certain areas of the station grounds crickets have appeared in great numbers and are feeding upon the bolls of flax plants. Our efforts to eradicate them by means of poisons have not been altogether successful. Recent general rains extending over three days have checked harvesting of flax, which was progressing well in commercial fields. Where flax has been harvested and is in the shock there is danger of damage from sprouting.

Sir John Pussel, Director of the Pothamsted Experimental Station, and Lord Bledisloe, spoke on the development of Britishragriculture, September 3 at the North Dakota Agricultural College. On the following day they visited the plats at the experiment station.

Agricultural Experiment Station, Agricultural College (Barberry Fradication, G. C. Mayoue). No report.

Dickinson Substation, Dickinson (R. W. Smith). (September 15). Threshing in this vicinity has progressed without much interruption from unfavorable weather. Yields of wheat from 10 to 30 bushels per acre have been reported, with an average of about 15 to 18 bushels. Yields of oats and barley are also good. Not much flax has yet been threshed.

The yield of spring whene in this country (Stark) is probably the best obtained since 1915. Owing to a cool summer the corn crop is very late and at this date probably is the least mature of any year since 1915.

Light frosts on September 1 and 15 did a little damage to corn on low ground; that on nigher land escaped injury.

Threshing at the Substation is completed, with the exception of flax and proso varieties, afer increase plats, and the cereal nursery.

F. D. Richey and J. H. Martin of the Office of Cereal Investigations, and J. M. Stephens, of the Mortnern Great Plains Field Station at Mandan, were recent visitors.

Yields of oat varieties grown at this station in 1924 are given in the following table. Yields of other crops not yet reported will be given later.

Yields of oat varieties grown in quadruplicated 1/56 acre plats at the Dickinson Substation in 1924.

Variety	C. J. No.	Yield (Bu. per acre)
Gopher	2027	69.0
Richland	787	67.1
Golden Rain	4493	65.1
Victory	5ŰÔ	64.0
Lincoln	758	63.3
Big Four	558	62.6
Early Mt. No. 2	556	62.1
Iogren	505/1	67. 🍇
Silvermine	659	60.5
Kherson	459	58.9
Nebraska No. 21	8141	58.5
Markton	2053	58.4
Swedish Select	134	58.2
Banner	160	57.9
Banner Sel. (B. C.)	1907	57.8
Early Mountain No. 8	2036	57.8
Siberian	3 ;17	55.9
lower	847	55 . 5
Six ty- Day	165	54.5
White Russian	55%	49.4
Liberty Hull-less	8 75	35.2
Average		58.7
Yaroslav emmer	1.526	56.1

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (September 16) Most of the flam varieties in the varietal plats and the June 1 seedligh. Of the date-of-seeding-and-tillage experiment were harvested September 4.

Threshing of the wheat, oats, and tarley varieties was completed September 3. Yields are given in the following table. The grain has all been cleaned in the fanning mill and samples of wheat for milling tests have been put up ready to be shipped.

Separation of the flax and grain in the flax-and-cereal-mixture experiment has been made, but final yields will not be available until data is obtained from thesequares harvested separately by hand.

Most of the flax in the nursery plantings was harvested September 13 and the remainder on the 15th. The flax varietal and date-of-seeding-and-tatillage plats still remain to be threshed.

Temperatures have been moderate during the first half of September; maximum temperature, 89° on the 3rd; minimum, 36° on the 14th; precipitation 0.90 of an inch.

Yields obtained from varietal plats of wheat, cats, and barley ath the Northern Great Plains Field Station, Mandan, N. Dak., in 1924.

C. I. No.	Variety	Yield	(Biz.	per	Acre)	
Common Wheats						
6607 6255 6898 6248	Quality*	29.2 28.7 28.5				
6794 6900 6047 6397 4733	Redsask	27.8 27.1 27.1				
7370 3641 3697 3081 7373	Marquis x Manred (1718B8-11) Marquis Power Preston Marquis x Kanred (1718B3-14)	25.4 24.5 23.5				
	Durum Waeats					
5519 3320 1440 5284 5296 4064	Nodak	24.6 23.7 23.4 21.5				
	Oats.					
2027 165 57-1 134 560 493 2024 738 741 845	Gopher	41.2 40.4 39.2 39.0 38.9 37.3 36.1 35.0				
531 187 690 261 195 244	Barley Hannchen Svangals Club Mariout White Smyrna Manchuria	27.9 27.5 22.9 21.6				

MONTANA

Judith Basin Substation, Moccasin (R. W. May). No report .

State College of Agriculture, Pozeman (Parterry Fradication, W. N. Christopher). No report.

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe). No report.

_Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford). No report.

OREGON

Sherman County Branch Station, Moro (D. E. Stephens). No report.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones). No report.

University Farm, Davis (V. H. Florell). No report.

Agricultural Experiment Station, Berkeley (F. N. Briggs). no. report.

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CEREAL COURIER

Official Messenger of the Office of Cereal:Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16

No. 23

September 30, 1924 Personnel (Sept. 21-30 and Project Issue

PERSONNEL ITEMS

Doctors C. R. Ball, A. G. Johnson, and C. E. Leighty attended the dedication of the Boyce Thompson Institute for Plant Research at Yonkers, N. Y., on September 24. More than 200 plant physiologists, chemists, and workers in allied sciences were present. The forenoon was spent in inspecting the portion of the Institute already constructed and in operation, which represents about one-fourth of the total proposed structure. The arrangement of the various units and the efficiency of the apparatus for controlling tempera ture, humidity, light, ect., will be tested thoroughly in the present unit in order that the construction of later units may profit by the additional knowledge and experience.

In the afternoon the dedicatory program was presented in the auditorium of the country club immediately adjacent to the Institute. The meeting was presided over by Professor John M. Coulter, of the University of Chicago, who is one of the board of trustees of the Institute. Dr. William Crocker, Director of the Institute, spoke on the "Aims of the Institute," and Professor Vernon H. Blackman, of the Imperial College of Science and Technology, London, England, responded, speaking on the subject, "Botanical Greetings from Europe," and Professor Louis R. Jones, of the University of Wisconsin, responded, speaking on "America's Need for Plant Research." Following the formal program, talks were given by Dr. Raymond F. Bacon, former director of the Mellon Institute, and a personal friend of Col. Boyce Thompson; by Raymond Robins, of Chicago, also a personal friend of Colonel Thompson, and who brought a letter of greeting from President Coolidge; by Dr. E. D. Ball, Director of Scientific Work in the U. S. Department of Agriculture; by Dr. R. A. Harper, of Columbia University; by President Philip Perry, of Phillips Exeter Academy, of which institution Colonel Thompson and Daniel Webster are honored alumni; by Dr. R. W. Thatcher, Director of the New York State and Cornell University Agricultural Experiment Stations; and by Dr. J. G. Lipman, Director of the New Jersey Agricultural Experiment. Stations, and newly elected president of the International Society of Soil Science.

A buffet luncheon was served to the guests at the beautiful home of Colonel Thompson, which crowns a wooded hill overlooking the Eudson Valley, just above the Institute and the country club. After the luncheon the guests were given an opportunity to see the magnificent collection of precious and semiprecious stones and rare and beautiful mineral formations. This collection represents but one of the ma ny interesting scientific avocations of the founder of the Institute for Plant Research.

<u>Dr. Harry V. Harlan</u>, agronomist in charge of barley investigations, gave the members of the Office a very interesting account of his experiences in Abyssinia as an agricultural explorer in 1923. Many excellent lantern slides were shown in the course of the talk.

John H. Martin, associate agronomist in western wheat investigations, returned to Washington on September 25 after an extended absence in the West in the interests of wheat investigations. During the school year of 1923-1924 he was a graduate student of biochemistry and plant breeding at the University of Minnesota.

<u>Charles S. Reddy</u>, associate pathologist in crarge of bacterial diseases of cereals, arrived in Washington September 22. His headquarters have been transferred from Bloomington, Ill., to Washington, D. C. Mr. Reddy will conduct his laboratory research chiefly at Arlington Experiment Farm.

VISITORS

- Dr. A. F. Blakeslee, of the Carnegie Station, Cold Spring Harbor, L. I., N. Y., was an Office visitor September 26 and 27. He expects to attend the Pan-American Congress to be held at Lima, Peru, December 20, 1924, to January 6, 1925.
- Mr. Shukri Hussein Kassabzade, of Bourdour Asia Minor, Turkey, who has been spending some time in graduate study in agriculture at Cornell University, and who also has been a student at the Utah Agricultural College, was a visitor in the Office the last week of September. He left Washington to sail for England, where he will spend some time before returning to Turkey.
- Mr. T. H. Shen, a Chineses student of agriculture, visited the Office recently to learn something of the methods of plant breeding in use by this Office. Mr. Shen was last year a graduate student at the Georgia State College of Agriculture and expects to enter Cornell University this fall for special study in plant breeding. He is particularly interested in the breeding of wheat and cotton.
- Dr. Silvio Spangenberg, Director of the National School of Agriculture at Casilda, Argentina, and the representative of the Argentine Ministry of Agriculture, was in Washington during the week of September 15. He was much interested in the experiments conducted at the Arlington Experiment Farm.

Doctor Spangenberg is now visiting a number of the State agricultural experiment stations in the corn belt and in the region northward. He is especially interested in the cultivation of maize, wheat, and flax and in agricultural education. Messrs. Emerson and Richey had the pleasure of visiting Doctor Spangenberg's school when they were in Argentina last Spring.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Certain Aspects of the Virus Diseases," by H. H. McKinney, was transmitted September 23 for publication as a Department Circular.

A manuscript of 347 pages, entitled "Tests of Barley Varieties in America," by <u>H. V. Harlan</u>, <u>Mary L. Martini</u>, and <u>M. N. Pope</u>, was submitted September 30 for publication as a Department Bulletin.

Page proof of paper, entitled "The Resistance of Oat Varieties to Stem Rust," by <u>W. W. Mackie</u> and <u>Ruth F. Allen</u>, for publication in the Journal of Agricultural Research, was read September 30.

Page proof of article, entitled "An Ascigerous Stage and Synonomy for <u>Fusarium moniliforme</u>," for publication in the Journal of Agricultural Research, by <u>Grace O. Wineland</u>, was read September 30.

The article, entitled "Effects of the Method of Desiccation on the Nitrogenous Constituents of Plant Tissue," By <u>Karl Paul Link a nd Ernest R. Schulz</u>, appears in the Journal of the American Chemical Society, vol. 46, no. 9, p. 2044-2050, 2 graphs. September, 1924. (This is a contribution from the Office of Cereal Investigations, Bureau of Plant Industry, Department of Agriculture, and the Department of Agricultural Chemistry, University of Wisconsin.)

CEREAL COURIER

Official Messenger of the Office of Coreal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16 October 10, 1924
Personnel (Oct. 1-15) and Field Station (Sept. 16-30) Issue

No. 24

PERSONNEL ITEMS

Dr. W. H. Tisdale, associate pathologist in charge of smut investigations, returned to Washington October 3.

With Prof. L. E. Molchers, of Manhattan, Kansas, he went to the Field Station at Dalhart, Texas. Superintendent H. J. Clemmer, accompanied them in an inspection of a number of fields of mile in the vicinity of Dalhart and Texline, Texas. There they noted covered smut of mile in one field to the extent of 9 per cent in parts of it and an average of about 4 per cent in two fields. Other fields of mile were found to be smut-free. According to Mr. Clemmer's statement, considerable smut occurred last year in the vicinity and in parts of the surrounding territory. Higher percentages were found in some fields last year than this.

From Dalhart Doctor Tisdale and Professor Melchers went to Clovis, New Mexico, and met there G. R. Quesenberry, extension agronomist, and County Agent E. C. Hollinger, of Clovis. Messre. Quesenberry and Hollinger stated that last year they had found one field of Dwarf Yellow mile with 50 per cent of kernel smut. In a field of hegari there was from 50 to 60 per cent. Here also they had found smut on feterita and Standard mile. This year smut was found in nearly every inspected field of Dwarf Yellow mile. The percentages were very low, in some cases not ever 1 per cent. One field of hegari showed about 1 per cent. No smut was found in fields of feterita. From all indications the smut is not nearly so severe as it was last year. According to Mr. Quesenberry, it is pretty widely spread through Union, Curry and adjoining counties of New Mexico.

From New Mexico, Doctor Tisdale and Professor Melchers went to Wood-ward, Okla., where no smut was found. According to Mr. Sieglinger, associate agronomist, there is very little smut of any kind in the vicinity of Wood-ward this year and almost none on the Station farm. He reported having seen no kernel smut of milo in that vicinity.

A report from A. F. Swanson, assistant agronomist at the Hays Branch Experiment Station, Hays, Kans., states that he found two heads of kernel smut on milo grown from seed which previously had been infested with smut from milo.

Milo seed obtained from New Mexico, Texas, and Kansas, when smutted with smut from milo and sown in the spring of 1924 on the Arlington Experiment Farm, near Washington, D. C., produced plants which contained fairly high percentages of kernel smut; one row showed more than 30 per cent. In these experiments, both Dwarf Yellow and Standard Yellow milo were included.

In view of the fact that this smut has been observed on milo, feterita, and hegari all of which were thought to be virtually immune from kernel smut, it is quite probable that we have a new strain of kernel smut. It was first thought that the plants in which this smut occurred might be hybrids, but this was found not to be the case; since this smut is known to occur in all these different types of sorghums, it would not be easy to explain its occurrence on the basis of host hybridity.

V. F. Tapke, associate pathologist, in cereal smut investigations, writes from Ithaca, N. Y., that he has completed the sowing of wheat in the smut experiments, putting in some 20,000 individual kernels, each one definitely spaced. He is happily situated in his new quarters at Cornell University and is being shown every courtesy by the members of the faculty and the Station staff.

VISITORS

Dr. Sadaharu Minami, connected with one of the technical high schools of Kyoto, Japan, was an Office visitor on October 8. He is primarily interested in plant breeding.

Sir Edward John Russell, Director of the Rothamsted Experimental Station, Haroenden, England, conferred with the senior agronomist in charge on October 4.

On the preceding day Sir John gave an address on the experiments at the Rothamsted Station, before members of the scientific staff of the Department He sketched briefly the history of the Station, the purpose of its founder, the early association of Lawes and Gilbert and the peculiarly complementary qualities of the two men, and the conditions existing in the organization which make possible the carrying on of pure research. He outlined the present program and explained its development from the beginning to the present time. He spoke of the ideals upon which their investigations are founded, and briefly sketched some of their past accomplishments.

MANUSCRIPTS AND PUBLICATIONS

Galley proof of Farmers' Bulletin 1328, entitled "Production of Seed Flax," by A. C. Dillman, was read October 2.

Bulletin 255 of the Illinois Agricultural Experiment Station, entitled "Corn Root, Stalk, and Far Rot Diseases, and Their Control Thru Seed Selection and Breeding," by <u>James R. Holbert, W. L. Burlison</u>, <u>Benjamin Koehler</u>, <u>C. M. Woodworth</u>, and <u>George H. Dungan</u>, was received October 4. (The investigations on which these results are based were conducted in cooperation with the Office of Cereal Investigations. The bulletin contains 239 pages and 86 figures)

Circular 284 of the Illinois Agricultural Experiment Station, entitled "A Program of Corn Improvement," by <u>C. M. Woodworth</u>, has been received. (This circular is essentially a reprint of a section with the same title in Bulletin 255 of the Illinois Agricultural Experiment Station, cited above)

An article, entitled "Physiological Studies on Cercals. II. The Occurrence of Amino Acids and Polypeptides in the Ungerminated Oat Kernel," by S. L. Jodidi, appears in the Journal of the Franklin Institute 198: 201-211.

August, 1924. (This is a contribution from the Office of Plant Physiological and Fermentation Investigations, Bureau of Plant Industry, in cooperation with the Office of Cercal Investigations. The first paper in this series, entitled "The Occurrence of Polypeptides and Free Amino Acids in the Ungerminated Wheat Kernel," by S. L. Jodidi and K. S. Markley, was published in the Journal of the American Chemical Society, v. 45, no. 9, p. 2137-2144. September, 1923. It also is a contribution from the Office of Plant Physiological and Fermentation Investigations, in cooperation with the Office of Cercal Investigations.)

Farmers' Bulletin 1240, entitled "How to Crow Rice in the Sacramento Valley," by <u>Jenkin W. Jones</u>, was received from the Government Printing Office on October 7.

A short paper, entitled "Research Fundamental to the Solving of Crop-Plant Problems, by Carlston R. Ball, appears in the Journal of the American Society of Agronomy, v. 16, no. 9, p. 553-556. September, 1924. (This was Doctor Ball's introductory address before the symposium held under the joint auspices of Section 0, Agriculture, of the American Association for the Advancement of Science, and the American Seciety of Agronomy, held at Cincinnati, Ohio, December 28, 1923.)

A paper, entitled "Taxonomy," by <u>Carleton R. Ball</u>, appears in the Journal of the American Society of Agronomy, v. 16, no. 9, p. 556-566. September, 1924. (This is the first paper in the symposium referred to in the above citation.)

HIMID ARLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (September 24) The threshing of wheat and rye has all been finished, the results have been weighed up, and seed has been gotten out for seeding the crop this fall. The seeding of the rod-row nursery and the drill plats was completed September 20, and that of the increase plats September 22. The seeding of the hybrid nursery will be completed September 25.

In the wheat experiments of the past season Forward again proved to be a very good yielder and was free from smut. In spite of the fact that Forward is red, a great deal of it is being bought by the farmers of the State for seeding this fall. One field of 30 acres yielded something more than 31 bushels to the acre, and all of it has been sold for seed.

Arrangements have been made for multiplying two of our new selections of rye in the Hudson River counties.

At the State Fair our department had a rather large exhibit, featuring among other things certified seed of the varieties of small grains we are recommending.

Mr. Fred. D. Richey, of the Office of Cereal Investigations, was a visitor the week of September 15.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (No report).

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (September 25) The long drought of August and September was broken by heavy rains of almost cloud-burst intensity Sunday night, September 21. The rain gauge at the farm registered 2.70 inches Monday morning, while that at the Weather Bureau in the city indicated over four inches of rainfall. The needed moisture has come too late to help the corn crop and as a result the yield throughout

the State will be very short and of poor quality. Grass and late crops will be materially benefited, however.

We are looking forward to the coming visit of Sir Edward John Russell, Director of the Rotnamsted Experimental Station, Harpenden, England, who will be here three days of next week, beginning September 29. The members of the staffs of the station, extension division, and college will meet him at an informal dinner at Cherokee Country Clab Monday evening, after which he will give an illustrated locture. The next day will be spent in lectures, talks, and inspection of experiment projects. Sir John will leave Wednesday afternoon for Washington, D. C.

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Fradication, M. A. Smith) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Fradication, G. C. Curran) (October 1)

An escaped area of <u>Berberis canadensis</u> was found in the southwestern part of Tazewell County, near Spring Lake, and close to the Illinois River. The area extends over steep, wooded hills for a distance of at least three miles. The soil is sandy and the barberry grows in thick clumps. Thousands of bushes, about two to three feet high have been located and more than eight tons of salt applied. It is estimated that ten tons more will be required to complete the eradication. One hundred gallons of kerosene also has been used in eradicating this barberry. Cultivated plantings of <u>Berberis canadensis</u> have not yet been discovered in the vicinity of this escaped area. The land is so hilly that a horse and wooden sled are used in transporting the salt.

Several resurveys will have to be made before this region will be freed from this barberry.

Several barberry-eradication demonstrations were put on at county fairs in Illinois in September. A barberry display was established at the State Fair at Springfield. The people were interested in these demonstrations and many barberry plantings were reported.

Resurvey activities have been confined to Kane, DuPage, and LaSalle counties. Many barberry bushes missed in the original survey have been located and destroyed.

The original survey of bounties was completed by the end of September.

It is planned to complete the survey of three more counties before the season closes.

The field force of the State Department of Agriculture has completed a resurvey of Livingston, Iroquois, Ford, and Kankakie counties and is now engaged in making an original survey of Vermilion County.

INDIANA

Purdue University Agricultural Experiment Station, LaFayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Favette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, Fast Lansing (Barberry Eradication, W. F. Reddy)
(No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradicarion, W. A. Walker) (September 22) The original survey will be completed within the next few weeks. Work has been started in the last counties of the State. Several finds were made in the cities of Ashland and Superior.

A second survey of Dodge county will be completed this month. Several new plantings were located and some escaped busines also were found by tracing from stem rust on grains rather than scouting from planted barberries as centers.

Traces of stem rust began to appear in the extreme northern part of the State about August 1. In the central and southern part of the State infections on grain in the general vicinity of barberries seemed to appear earlier and become heavier than on grain away from barberries. It seems quite evident that the general infection appearing later ever northern Wiscensin came directly from these centers.

More than 2,000 sprouts and new bushes have been located and cradicated in the vicinity of Trempealeau. Stem rust was found on oats in that vicinity and had spread northward. Only an occasional trace of stem rust was found directly south of this escaped area.

Two areas of escaped bushes have been localed near Grantsburg, Burnett County. This is the most northerly point of the State where escaped bushes have been located.

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Asmodt) (Ne report)

Agricultural Experiment Station, University Farm, St. Paul (Stom Rust Investigations, E. C. Stalman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Fradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (October 2) With the exception of the days on which the County Fair was held, the weather of the last half of September was dry. The nights have been coel, and the sorghums are ripening rapidly. Most of the grain sorghums are in the shock at present; only two of the late varietal plats and some of the later date-of-seeding plats remain to be harvested. We have been selecting seed heads and harvesting the grain sorghums. Quite a number of mile hybrids and the broomcorn nursery remain from which to select seed heads this menth.

Prof. L. E. Molomers, of Hambattan; Kans., and Dr. W.H. Tisdale, associate pathologist, Office of Coroal Investigations, were visitors on September 30. While we could not show many specimens of sorghum discases, the day was spent in inspecting the different sorghums and broomcorns.

Maximum temperature for the last half of September, 92°, on the 20th; minimum, 39° on the 29th; precipitation, 2.37 inches for the last half of the month or 3.22 inches for September.

KANSAS

Agricultural Experiment Station, Manhattan (J. h. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (October 1) The first killing frost occurred September 29 when the temperature fell to 27° above. A light rainfall of 0.75 of an inch on September 18 was sufficient to germinate most of the wheat solded before that date. The available moisture supply is limited, however, except on well-prepared fallow seedbeds. More rain will be needed soon if the wheat is to go into the winter stage in good condition.

The last of the winter wheat was seeded on the Cereal Project today, with the exception of the rate-and-date-of-seeding experiment, which will be continued for four more weeks.

The last of the Sorghums will be harvested in the next two days. All of the varieties that were ripe before frost were harvested a week ago.

The writer recently made a short trip through the sorghum belt of south-western Mansas. A survey was made of the sorghums as compared with corn. The number of fields of these two crops which could be identified while passing along the road were as follows:

Corn	188
Blackhull kafir	70
Red Amber	45
Sumac	33
Freed sorgo	33
Pink kafir	24
Sudan grass	23
,Black amber	21
Standard milo	9
Dwarf milo	9
Feterita	6
Miscellaneous sorghums	. 9

The Blackhull kafirs wherever found looked very promising and prove to be a much more profitable crop than corn wherever a direct comparison could be made. Only about 10 per cent of the sorghum fields were pure and uniform as to type. Kernel smut in sorghums did not seem to be very prevalent.

The writer spent half a day at the Hutchinson State Fair looking over an interesting display of crops from over the State. Of the sorghums the Blackhull kafirs proved to be the most popular. Blackhull wheat was awarded first place over all varieties of wheat exhibited.

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Tungren) (October 2) In the month of September a second survey was conducted in Costilla, Fremont, Huerfano, and Pueblo counties. Two new finds were located, one in Pueblo County and another in Fremont County.

A fall resurvey was made of the areas of escapes in Larimer and Fremont counties. One escaped bush was found in the former. Fifty-two seedlings were found in three counties. The number of seedlings are rapidly decreasing by reason of the spring and fall resurveys of these areas of escapes. All properties on the western slope where bushes had been located formerly were resurveyed the past season; also all properties on the eastern slope, where survey seemed necessary, thus completing our resurvey for this season.

We are glad to report very little damage due to stem rust this year.

At present we are preparing to extend our efforts in educational work on stem rust throughout the State in cooperation with the Smith-Hughes teachers. The work will consist of demonstration and laboratory exercises.

Studies of overwintering of stem rust are being continued. The plats are located in the same places as those of last year. Check data on the past year's results will be obtained.

NEBRASKA

North Platte Substation, North Platte (George F. Sprague) (No report)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiol) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayous) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (October 2) Threshing, which has been in progress at the Substation for most of September, is now completed with the exception of a few head rows of wheat. There has been practically no precipitation this month to interfere with threshing except a rainfall of 0.49 of an inch on the night of September 19. Weather conditions being unusually good, threshing in the county has made good progress, and about two weeks more of good weather will be sufficient to finish most of this work.

A severe frost on September 27, with a minimum temperature of 25 degrees, put an end to further growth of the corn. A few light frosts carlier in the month injured corn on low ground and touched the leaves in the varietal test. Because of prevailing cool weather corn had developed very slowly and none of it is entirely mature. Some of the flint varieties matured pars to the stiff dough stage and a few ears on early dent varieties are but slightly less mature.

Most of the ears selfed this year were sufficiently mature to grow. The stalks bearing these cars were harvested September 26 and placed in a large shock protected from frost to ripon somewhat before husking.

Varieties of wint r wheat in plats and nursory are beginning to emerge, being delayed by the dry condition of the soil.

Yields obtained from replicated varietal plats of winter wheat, rye, barley, flax, and prose are given below. These are subject to slight changes when checked later.

It will be noticed that, because of a wet fall and a mild winter, the winter-wheat warieties yielded more than the spring-wheat varieties given in a former report. (See Courier, v. 16, no. 21, p. 263-264.)

Yields of barley varieties grown at the Dickinson Substation, in 1924, in quadruplicate 1/56th-acre plats. *

C. I. No.	Variety 2-rowed hulled	Yield (Bu. per acre)
907 203 2169 658 962 187 531	Steigum Hanna White Smyrna (S. Dak. No.28-7-15) White Smyrna Scholey Svanhals Hannchen	39.9 33.6 33.3 32.7 32.0 25.5 25.0
529	Princess 6-rowed hulled	19.3
182 244 575 932 920 1311 663	Odessa Manchuria Gatami Club Mariout White Gatami Flynn Chile Common	37.3 32.7 30.6 26.8 25.1 23.6 24.7
1177	5-rowed hooded hulled Wing Pedigree 6-rowed hulled naked	24.8
262	Nepal	19.2

Yields of flax varieties grown at the Dickinson Substation, in 1924, in triplicate 1/56th-acre plats. *

244	N. Dak. No.40015	19.4
241	N. Dak. No. 40013	17.0
3	Damont	14.7
8	N. D. R. No. 52	14.6
13	N. D. R. No. 114	14.5
280	Argentine Selection	13.9
12	Primost	13.8
19	Reserve	13.7
186	Sel. 19-6	13.7
185	Stark	13.0
260	Sel. 4-1	11.9
183	Sel. 30-3	11.4
184	Billings	11.2

^{*.} These yields are subject to slight change when checked for the annual report.

Yields of proso varieties grown at the Dickinson Substation, in 1924, in duplicate 1/56tn-acre plats. *

C. I. No.	<u>Variety</u>	Yiold
		(Bu. per acra.)
61	Red Russian	19.4
4	White Ural	17.0
31	Turghai	15.8
23	Early Fortune	15.2
19	Gray Sarepta	12.4
101	Yellow Manitoba	12.1
27	Black Voronozh	10.0

*. These yields are subject to slight change when checked for the annual report.

Average yields of winter-wheat varieties grown in plats at the Dickinson Substation, in 1924, drilled in standing corn, in corn stubble, and in out stubble.*

C. I. No.	Variety	Yield.		_	
		4	(Bu.	per	acre)

1571 5146 1583 6700 1543 6155	Turkev Kanred Kimrkov Karmont Beloglina Minturki	In stand- ing corn 33.5 36.2 37.4 37.8 38.6 37.6	In corn stubble 20.7 19.0 20.3 22.4 23.5 21.3	In oat stubble 16.9 22.2 17.9 19.0 13.0	Average 23.7 25.8 25.2 26.4 26.7 25.7
5149	Minturki Minhardi	37.6 57.1	21.3 27.6	12.3 15.6	25.8
3330	Buffum No. 17	38.3	23.7	1+.9	25.6

Average yields of winter and spring rye varieties grown in plats at the Dickinson Substation, in 1924, drilled in wheat stubble. *

<u>v</u>	inter Rye	Yield (Bu. per acre	Spring Rye	Yield (Bu. per acre
175-5	Selection No.5	34.2	169 Spring Ryc	13.6
1-95	Rosen	31.5	J 1 3 .	
าธา	Advance	30.6		
175	Dakold (N. Dala. 959)	30-0		
_	Russian	29.3		
137	Swedish	27.3		
		_		
_	Wisconsin No. 12-19	24.5		
_	Sal. Non l	22.4		
	(von Rumker Green Rye)			

^{*.} These yields are subject to slight change when checked for the annual report.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (October 2) The weather of the last half of September was generally mild for this time of year and very favorable for fall work.

The winter-hardiness wheat nursery sown September 11 emerged about September 22 with fair stands.

The winter wheat bulked hybrid material was sown September 19 and has not yet emerged.

Throshing of flax from the date-of-sceding, mixtures, and varietal plats was completed September 19.

Cleaning of the seed from the oats and barley varietal plats was completed on the 22nd.

Cleaning of all flax from the date-of-seeding, mixtures, and varietal plats was completed September 23.

Notes on weights of crops and weeds from the squarcs harvested from the date-of-seeding and mixture plats was completed on the 24th.

Threshing of the wheat nurseries was completed September 27.

Threshing of the wheat and oats from the squares out of the flax and cereal mixture experiment was completed September 29.

Threshing of the flax nursery is now under way.

Maximum temperature for the period was 86° September 23: minimum, and also the first frost of the season was 31° September 26; precipitation 0.44 of an inch.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (September report)
Threshing the grain from the experimental plats were completed yesterday (September 30). The nursery threshing is perhaps less than half completed. It will require about a week to complete the nursery threshing and about another week to permanently store the grain from the plats and nursery rows. These two operations and weighing the corn fodder will almost complete the outdoor work under the Cereal Project. The corn was harvested on September 22 after being frosted on September 18. Most of the corn was in the roasting ear stage at the time of the frost. Corn was unusually backward this season.

Winter wheat, particularly that sown with an ordinary drill, has emerged very irregularly. Some of the wheat which was sown on September 12 and 13 has not fully emerged at this date (October 1.) It has not been possible to make stand counts in the nursery rows because of incomplete emergence of the wheat. Wheat that emerged early has made very good growth.

The precipitation recorded in the last half of September was quite satisfactory while the amount recorded in the first half of the month was rather small. A snow which fell on September 25 measured. .48 of an inch precipitation. The total precipitation recorded in September was 1.28 inches which is .14 of an inch less than average. Seedbels contain abundant moisture at present.

A killing frost occurred on September 13 which is the average date of the first killing frost in the fall. The minimum temperature recorded on the morning of September 18 was 23 while the minimum temperature recorded during the month was 20 on the morning of September 25. The maximum temperature recorded was 86 on September 2.

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Abordeen Substation, Abordeen (A. E. McClymonds, Supt.) (September 25) Because of the shortage of irrigation water, this year has been one of the driest since 1919 in the experience of the Abordeen Substation. There was sufficient water, however, to mature the small grains in excellent shape. The varieties of wheat and barley in the plats produced yields slightly above the average, while oats fell a little below the average.

Field and gardon peas did unusually well. The yields of alfalfa seed are the highest ever produced on the project; one plat on the Station farm yielded 15 bushels to the acre. Many fields in the vicinity of Aberdeen are making from 7 to 12 bushels. With a price of 35 cents a pound, which the buyers are paying at present, it will make a return of from \$100.00 to \$200.00 an acre. The cost of production averages about \$25.00 an acre on old stands.

The yields of potatous and beets will be cot, because no water was available for late irrigations. The potato yield on the Station farm will be about the average for the last five years, primarily because of a good mulch resulting from the last watering.

An average yield of well-matured corn was obtained. The last application of water was applied August 10. The first killing frost occurred on September 11; there was sufficient time for the corn to mature.

In the following tables are given the average yields obtained from wheat, oats and barley at the Aberdeen Substation in 1924.

Average yields of winter and spring-wheat varieties grown at the Aberdeen Substation, in duplicate twentieth-acre plats, in 1924.

Winter Wheat			Spring Wheat		
C. I. No.	Variety	Av. Yield (Bu. per acre)	C. I. No.		Yield er acre
4512	Hybrid 128	38.5	4734	Federation	69.3
1442	Knarkof	36.8	<u> 3</u> 663	Dicklow	66.8
51,46	Kanred White	36,3	6221	Onas	66.8
6688	Moșida	33.0	4984	Major	65.6
4463	Martin	31.0	6220 .	Boadicea	61.0
41.56	Fortyfold	28,5	1697	Farly Baart	60.8
6703	Ridit	27.8	4733	Hard Fcderation	59.3
•			4981	White Federation	59.0
			6255	Red Bobs	57.6
			4067	Pacific Bluestem	57.3
			3276	Marquis	52.5
			6607	Quality	48.0

Average yields of barley varieties grown at the Aberdeen Substation, in duplicate twentieth-acre plats, in 1924.

C. I. No.	<u>Variety</u>	(Bu. per acrc)
936 531 190 910 1176 959 937	Trebi Hannchen Beldi Smyrna Meloy Cape Coast Hybrid Alpha Sandrel	87.7 77.0 76.2 68.5 60.4 54.4 53.9 52.0*

^{*} Single plat only.

Average yields of oat. varieties grown at the Aberdeen Substation, in duplicate twentieth-acre plats, in 1924.

C. I. No.	Variety	Av. Yield (Bu. per acre)
		(but per acre)
1631	Hvitling	79.4
2053	Markton	77.2
2020	Victory	75.9
493	Golden Rain	70
505/1	Iogren	73.7
847	Iowar	73.1
1834	Idamine	72.5
2022	Crown	71.6
724	Rustless	71.1
1745	American Triumph	68.4
134	Swedish Select	65.3
729	Albion	60.9

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, (C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (September 29)
The weather in September has been favorable for the maturing rice crop. A number of growers began harvesting last week, and the ground is in excellent shape for cutting. The rice is maturing about a week earlier than last year and the yields should be reasonably good. The market at present is about \$3.00 per hundrel for No. 1. paddy.

We have harvested a number of early varieties in the nursery, and a number of field plats. We intend to cut all the Station rice this week, except some late varieties which will not be ripe.

On September 5 about 50 rice growers visited the Station to inspect plats on which a crop of Burr clover was plowed under before seeding last spring. There is a marked difference in the growth of rice on the green manured and unmanured plats, the growth being much better on the manured plats.

On September 13 the University held its annual meeting at Cortena for the purpose of inspecting the rice experiments conducted there. There were probably 40 people present and the day was well worth while.

University Farm, Davis (V. H. Florell) (No report)

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16

October 20, 1924 No. 25
Personnel (Oct. 11-20) and Field Station (Oct. 1-15) Issue

PERSONNEL ITEMS

Dr. Carleton R. Ball, senior agronomist in charge, will leave Washington October 22 for California where he will inspect all the cooperative cereal investigations and confer with officials of the California Agricultural Experiment Station about plans of cooperation for the future. He will then proceed to Tucson, Ariz., to attend a conference of western agricultural extension workers and present the work of the Office of Cereal Investigations in the western States.

Charles E. Chambliss, associate agronomist in charge of rice investigations returned October 16 from a trip in the southern rice-growing States. The cooperative experiments at the Rice Experiment Station, Crowley, La., where Mr. Chambliss spent four weeks, are in excellent condition in spite of the lack of rain and consequent shortage of irrigation water. The indications are that rice yields will be as large as in any previous years; certainly any loss in yield will not be because of adverse weather conditions.

After leaving Crowley Mr. Chambliss visited Lake Charles, New Orleans, and Baton Rouge, traveling by automobile through four parishes of Louisiana to study the rice and soybean crops. He also visited Mobile, Ala., Griffin, Ga., Pensacola, Jacksonville, and Gainesville, Fla., Charleston and Summerville, S. C., and Wilmington, N. C., in the interests of dry-land rice culture. In no place was the rice seriously affected by the continued drought.

Dr. G. N. Hoffer, pathologist in charge of the investigation of rcot, stalk, and ear rots of corn, in cooperation with the Purdue University Agricultural Experiment Station, has been authorized to proceed from La Fayette, Ind., to Pottstown, Pa., to collect data on experiments with corn hybrids.

A. L. Nelson, superintendent of the Cheyenne Experiment Farm, Archer, Wyo., writes that the past year has been fairly successful at the Farm. The new methods of tillage and seeding have resulted in better yields and lower cost of production.

The Mayor of Cheyenne and the Cheyenne Chamber of Commerce have taken an active interest in the experimental work. The Cheyenne Experiment Farm has lost a friend in the recent death of Governor Ross.

VISITORS

- C. B. Hitchison, formerly Director of the University Farm School and Experiment Station at Davis, Calif., was an Office visitor October 15. Professor Hutchison has resigned his position to become the European resident representative for agriculture of the International Educational Board of the Rockefeller Foundation. He will join Dean A. R. Mann, of the College of Agriculture at Cornell University, in a 2-year study of educational facilities and needs in the different countries in the line of agriculture and will arrange for international cooperation in agricultural education, research, and practice. For the present their headquarters will be in Rome in connection with the International Institute of Agriculture; later they will be located in Paris.
- F. J. Schneiderhan, assistant plant pathologist at the horticultural substation of the Virginia Agricultural Experiment Station, located at Winchester, Va., was an Office visitor October 14.

Señor Alberto J. Wiedmaier, Ingenieur Agronome and Ingenieur des Forets, of the Estación Experimental de la Sociedad Nacional de Agricultura, Santiago, Chile, conferred with the senior agronomist in charge, on October 13 concerning disease-resistant varieties of small grains of which he desires seed for experimental purposes.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled "Handling the Soft Corn Crop," by

Frederick D. Richey, was submitted October 10 for publication as a Department
Circular.

A manuscript, entitled "Acidity and Varietal Resistance of Wheat to Tilletia tritici," by <u>Dr. Annie May Hurd-Karrer</u>, was approved October 20 for publication in the American Journal of Botany.

Galley proof of Department Bulletin 1309, entitled "Experiments with Small Grains on the Arlington Experiment Farm," by <u>John W. Taylor</u>, was read October 13.

Galley proof of article, entitled "Infection of Barley by <u>Ustilago muda</u> through Seed Inoculation," by <u>W. H. Tisdalë and V. F. Tapke</u>, for publication in the Journal of Agricultural Research, was read October 13.

Galley proof of article, entitled "Segregation and Correlated Inheritance in Crosses Between Kota and Hard Federation Wheats for Rust and Drought Resistance," by J. Allen Clark, for publication in the Journal of Agricultural Research, was read October 18.

Varietal Resistance in Sorghums, ".by Leo E. Melchers and George M. Reed, was read October 18.

Page proof of article, entitled "The Inheritance of Pubescent Nodes in a Cross Between Two Varieties of Wheat," by H. H. Love and W. T. Craig, for publication in the Journal of Agricultural Research, was read October 13.

Page proof of Farmers' Bulletin 1328, entitled "Production of Seed Flax," by A. C. Dillman, was read October 18.

The article, entitled "Natural Crossing in Oats at Akron, Colorado," by T. R. Stanton and F. A. Coffman, appears in the Journal of the American Society of Agronomy, v. 16, no. 10, p. 646-659. October, 1924.

The article, entitled "Observations on the Time of Blooming of Rice Flowers by <u>Jenkin W. Jones</u>, appears in the <u>Journal of the American Society of Agronomy</u>, v. 16, no. 10, p. 665-670. October, 1924.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love)
(No report)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (No report)

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) (No report)

ILLINOIS

Funk Bros. Seed Company. Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Far Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry Eradication, W. E. Leer). (No report)

OHIO

<u>College of Agriculture, Ohio State University, Columbus</u> (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, Fast Lansing (Barberry Eradication, W. F. Reddy)

(No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (October 15)

Yields from the uniform winter-hardiness nursery for 1923-24 at University Farm, St. Paul, Minn.

C. I. No.	Name:	Yield (Bu, per acre)
6152	Turkey (sel) Minn. No. 1448	52.3
6690	Minard	51.3
4430	Sherman	47.7
5 549	Montana No. 36	47.2
6472	Turkey (sel) Kans. No. 1664	47.1
6155	Manturki	46.2
6250	Nebraska No. 60	45.9
6938	Kharkof (sel.)	45.4
6936	Tenmarq (P 1066 x Marrquis)	44.1
6153	Padui ,	44.1
6935	Newton x Turkey	43.1
1442	Kharkof	43.1
1667	Beloglina	42.1
6680	Malakof (sel.) Wisc. 11.825	. 42.0
6251	Blackhull	41.7
6249	Nabraska No. 6	41.1
5146	Kanred .	40.9
6937	Kanmarq (Kanred'x Marquis)	38:6
5149	Minhardi	38.2
6686	Kharkof (sel.) Hays No. 2	37.6
6700	Karmont	37.2
4843	Hussar	35.6
6151	0dessa	35.2
3330	Buffum No. 17	34.3
5147	Nebraska No. 28	33.4
6934	Iobred	32.3
5408	Triplet	24.8

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Fradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (No report)

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (October 15) A light shower of 0.41 of an inch fell in the early part of October, which was sufficient to germinate much of the wheat. In general, wheat is making a good start, but more moisture will be needed soon if the crop is to go into winter in good condition.

We are just now in the midst of sorghum threshing; the weather is ideal. One of the best miles will run of bushels to the acre. The average yield of the sorghums probably will be about 35 bushels to the acre.

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, F. A. Lungren)
(No Report)

NEBRASKA

North Platte Substation, North Platte (George F. Sprague) (No report)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Fradication, R. O. Bulger) (October 15) While second survey constituted the major activity of the barberry eradication forces in South Dakota this year, considerable resurvey was also accomplished. Resurvey was carried on in connection with the second survey in the counties which were covered a second time. Other counties on which escaped areas were known to exist also were resurveyed. Thirty-seven counties have been resurveyed so far this year resulting in a find of 454 sprouting bushes on 70 properties and 725 seedlings on 33 properties.

Seedlings and escaped bushes still continue to make their appearance. Four large escaped bushes and 70 seedlings were found in Clay County on the banks of the Missouri River. No original plantings have been found within four miles of these escapes. In other cases seedlings appeared this year where the original bushes had been destroyed in 1918. This makes it evident that seeds may lie dormant for six years in South Dakota.

Rock salt appears to be effective where it is properly applied. Where bushes treated in 1923 were found sprouting again this year, it was evident that either too little salt had been applied or that the crown of the old bush had not been completely covered.

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)
(No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (No report)

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.)

(October 16) Threshing of the flax nursery was completed October 11, except for individual plant selections and a few late-harvested rows that were not dry enough to thresh.

The weather of the first half of October has been very mild. Maximum temperature for the period, 76° Oct. 11; minimum, 29° Oct. 6; precipitation 0.44 of an inch. On only two other days, October 2 and 5, the temperature dropped to 32° or below.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (No report)

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) ('October 8) The total precipitation for the month of September at Moro was 0.67 of an inch. It was recorded on several dates and was insufficient to perceptibly increase the moisture content of the soil, which at present is extremely dry. Much of the winter wheat in the Columbia Basin counties of Oregon will be sown this fall in dry ground.

The total precipitation at Moro for the nine months, January to September, inclusive, was only 3.6 inches. Nearly 2 inches of this was recorded in January and February.

Extremely interesting results were obtained this year in the grain nurserillocated in different sections of eastern Oregon. These nurseries will be continued in 1925 with the addition of two new ones, one near Condon in southern Gilliam county and one near Kent in Sherman county. About 40 winter-wheat varieties will be sown in three series of 3-row plats at each of eight locations in eastern Oregon. The varieties include the more promising of the smutresistant and new hybrid winter wheats as well as present important commercial varieties grown in Oregon. In most instances these varieties are grown in cooperation with the county agents in the various counties.

The following table gives the yields of 33 winter-wheat varieties grown in five dry-farm nurseries in eastern Oregon in 1924. These varieties also were grown at the Experiment Station at Burns under irrigation and under humid conditions at the Experiment Station at Corvallis in western Oregon.

Acre yield in bushels of winter-wheat varieties grown in five dry-land nurseries in eastern Oregon in 1924.

ļ			j	1	Morro		Uma	
Rank	Variety	C. I.No.	Moro	Wasco	Ione	Eight-	tilla	Avge.
				Co.		mile	Co.	
	Turkey 889-5		23.2	35.5			39-1	
1	Triplet	5408	22.4	33.5	23.5	40.8	37.1	31.5
2	Triplet Br. Gl. Sel.No	.6	21.6	35.0	21.2	32.4	43.5	30.7
2 3 4	White Odessa	4655	20.6	41.8	23.7	32.0	32.0	30,0
4	Mosida	6688	20.2	34.4	18.8		39.0	29.7
5	Pl068 x Preston (5896 -3-6)		24.3	39.7	24.3	25.3	33.7	29.5
6	Hybrid No. 128	4512	24.4	33.5b	20.6*	36.9*	32.2*	29.5
7	P1068 x Preston			7,7,00		74.7)	- 7.0
	(5914-26-3)		21.5	33.6	21.5	34.7	28.2	27.9
8	Sherman	4430	16.2	36.6	18.7	28.6	36.6	27.3
9	Kharkof	1442-12	16.5*	35.4*		26.5*	36.5a	
10	Kanred	5146	15.6	29.3	16.4	35,6	36.5a	
11	Pacific Bluestem	4067	19.3	27.5	24.3	37.4	24.7	26.6
12	Triplet Br.Gl.Sel	.007	20.1	32.3	17.1	25.5	37.7	26.5
	No. 1		20.1)=+)	I/.I	20.0)/./	20.5
13	Federation	4734	15.5	26.3*	18.0	46.8	24.0	26.1
14	Turkey (1571C-	7364	17.1	30.5	18.6	25.9	37.3	25.9
	Purple)	7,704						
15	P1068 x Preston (5903-8-2)		21.8	28.3	16.1	32.1	30.3	25.7
16	Major	4984	11.4	23.8	18.3	41.8	29.0	24.9
17	Turkey (3055A)	7366	13.5	31.6	16.1	28.9	34.3	24.9
18	Martin	4463	14.1	32.4	19.5	21.5	35.1	24.5
19	Fortyfold	4156	19.7*	25.7*		28.0*	32.0c	
20	White Odessa	4651-9	13.7	31.8	17.0	28.1	30.3	24.2
21	Jenkin		14.8	27.2	20.0	29.2	28.7*	24.0
22	Red Chaff		12.8	28.3	15.2	37.3	26.2	24.0
23	Turkey x Florence G326W-1	-	18.0	28.ĺ	15.8	26.3	32.0	24.0
24	Hussar	4843	16.1	29.7	15.3	22.4	34.1	23.5
25	Turkey (15710	7365	16.9	26.5	14.9	22.0	36.5	23.4
	White)	J - -				2210	74.0	
26	Turkey x Florence	-	17.8	27.4	15.8	25.3	30.8	23.4
07	G 326 W		300	05. (3.5.7	0). =	70.1	07.
27	Turkey x Florence G 326 W-3		19.2	25.6	15.3	24.5	30.4	23.0
28	Argentine Sel.	1569-2	14.6	27.0	16.7	22.4	33.7	22.9
29	Ridit	6703	17.5	22.4	14.8	22.4	36.5	22.7
3C	Turkey x Bd. Minn. No. 48	- colonyaria-su-	15.9	22.5	18.3	23.8	32.7	22.6
31	Wasco Hybrid No.1	-	17.1	21.8	12.7	22.4	31.4	21.1
31 32	Banner Berkeley Sal.						72.	
	No. 6		19.5	22.2	16.0	25.9	21.7	21.1
33	Canberra	4926	9.2	23.5	14.0	32.6	25.2	20.9

^{*} Average of two or more checks.

a. Yield of Turkey C. I. 7365 substituted.

b. " "Triplet substituted.
c. " White Odessa 4655 substituted.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (No report)

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

T.T.

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations,
Bureau of Plant Industry, U. S. Dept. of Agriculture.
(NOT FOR PUBLICATION)

Vol. 16

October 31, 1924
Personnel (Oct. 21-31) and Project Issue

No. 26

PERSONNEL ITEMS

- Dr. Arthur M. Brunson, associate agronomist in charge of cooperative corn experiments at the Kansas Agricultural Experiment Station at Manhattan, will come to Washington early in November for two months. While here he will be engaged in the preparation of manuscripts and also will confer with Bureau officials concerning the progress of the cooperative corn experiments.
- Dr. H. B. Humohrey, pathologist in charge of cereal disease investigations, will leave Washington about November 4 to confer with Federal and State Officials in Minnesota, Wisconsin, Illinois, and Indiana, regarding the cooperative barberry eradication campaign and studies and experiments in connection with stem rust, corn root rot, and wheat scab investigations. He will be in the field about two weeks.
- Dr. A. G. Johnson, senior pathologist in charge of the investigations of diseases of cereals caused by imperfect and sac fungi, and Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, will leave Washington November 6 for Lincolnton, N. C., where they will make sowings in the wheat "take-all" experimental plats. This experiment is being conducted in cooperation with the North Carolina Agricultural Experiment Station.
- C. S. Reddy, associate pathologist in charge of bacterial diseases of cereals, left October 25 for Illinois to assist in the harvest of the experimental corn-disease plats in the cooperative investigations at Bloomington and other points. He will return to Washington about November 15.

MANUSCRIPTS AND PUBLICATIONS

A manuscript, entitled, "A Statistical Study of the Relation between Seed Ear Characters and Productiveness in Corn, " By Frederick D. Richey and J. G. Willier was submitted October 25 for publication as a Department Bulletin.

A brief article, entitled "The Seed-Flax Crop Comes Back," by A. C. Dillman, was approved October 28 for publication in Science Service.

Galley proof of Department Bulletin 1275, entitled "Varietal Susceptibility of Oats to Loose and Covered Smuts," by George M. Reed, Marion A. Griffiths, and Fred N. Briggs, was read October 21.

Galley proof of Department Bulletin 1299, entitled "Relative Resistance of Wheat to Bunt (<u>Tilletia tritici</u>) in the Pacific Coast States," by W. H. Tisdale, J. H. Martin, F. N. Briggs, W. W. Mackie, H. M. Woolman, D. E. Stephens, E. F. Gaines, and F. J. Stevenson, was read October 27.

Page proof of paper, entitled "Stripe Rust (<u>Puccinia glumarum</u>) of Cereals and Grasses in the United States," by <u>H. B. Humphrey</u>, <u>C. W. Hungerford</u>, and <u>A. G. Johnson</u>, for publication in the Journal of Agricultural Research, was read October 24.

Page proof of Department Circular 333, entitled "Handling the Soft-Corn Crop," by <u>Frederick D. Richey</u>, was read October 28; on October 31 the Circular was received from the Government Printing Office.

The following three articles from the Office of Cereal Investigations, appear in the Journal of Agricultural Research, v. 28, no. 6, May 10, 1924, which was received October 22 from the Government Printing Office:

The Genetic Relation between <u>Triticum dicoccum dicoccoides</u> and a Similar Morphological Type Produced Synthetically, by <u>H. H. Love</u> and <u>W. T. Craig.</u> (Cooperation between Cornell University Agricultural Experiment Station and the Office of Cereal Investigations.)

Puccinia graminis poae Erikss. and Henn. in the United States, by E. C. Stakman and M. N. Levine. (Cooperative investigations between the Office of Cereal Investigations, and the Department of Agriculture of the University of Minnesota.)

"Hairy Neck" Wheat Segregates from Wheat-Rye Hybrids, by Clyde E. Leightw and J. W. Taylor.

PROJECT REPORTS

RUST INVESTIGATIONS (Dr. H. B. Humphrey, Pathologist in Charge)

Preliminary Report on Locations of Buckthorn (Rhamnus cathartica)

in the Upper Mississippi Valley States in 1924

By A. G. Lennox, Agent in Crown Rust Investigations.

In cooperation with the State leaders of barberry eradication and their field assistants, a continued report for 1924 of the locations of buckthorn (Rhamnus cathartica) was made possible. Following is a summary of the locations of Rhamnus cathartica in seven Mississippi Valley States.

			•			
				Number of Plant	ting	<u>zs</u>
State				Number of	:	Length of hedge in feet Bushes not counted
	City	: Country:	Total:	Bushes counted		Busites not courte
			•			
Illinois	6	3 16	9	338		2.770
Iowa	9	16	25	1,173		2,370
Michigan	0	1	1	1		g gE0
Minnesota	69	77	146	2,511		8,852
Montana	16	6	22	767		300
No.Dakota	0	7†	4	125		765
Wisconsin	22	6	28	4,046		365
Total for	122	113	235	8,961		11,887
1924						
Total for	617	169	786	84,080		32,508
1923						
,-,						
Grand Tota	1739	282	1,021	93,041		14,395
0.10.112	-177	`				

In 1924 Minnesota ranked first in the number of plantings reported and total number of bushes, followed by Wisconsin, Iowa, and Montana. More plantings were found in the cities in 1924; however, the larger sized plantings were in the country. In the upper Mississippi Valley, 93,041 bushes were located, in addition to 44,395 feet of hedge in 1923, and 1924.

Areas of escaped bushes were reported as being general in Wisconsin throughout Black Earth, Trempealeau, Walworth, and Dane counties. In Montana, reports were received of wild areas in Missoula and Lake counties.

Aecial infections were found from May until July; about 50 per cent of the findings in Minnesota during this period were infected.

Report of Progress of the Barberry Eradication Campaign September 30, 1924

By Dr. F. E. Kempton, Associate Pathologist in Charge, and L. D. Hutton, Associate Pathologist, Barberry Eradication.

The barberry eradication campaign was organized in February and March, 1918, by the Office of Cereal Investigations of this Bureau, in cooperation with the following 13 north-central, grain-growing States; Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming. The purpose of this campaign is to eradicate the common barberry and all its horticultural varieties, and any other susceptible species of Berberis, as a means of reducing stem-rust losses.

The original farm-to-farm survey of all properties in each of the 13 States is progressing rapidly. By the end of this field season this survey will be completed in nine of the 13 States. Out of a total of 900 counties, only about 90 counties in the States of Illinois, Michigan, Ohio, and Montana, will remain to be covered.

In the entire campaign from April 1, 1918, to September 30, 1924, the equivalent of 773 counties has been covered in the original survey and counties and parts of counties equivalent to 102 counties in the second survey. Resurveys to locate sprouts and seedlings have been carried on as rapidly as possible. On the original survey 6,275,209 bushes have been located on 67,391 properties and 2,392,414 seedlings on 1,130 properties. These numbers include 8,659 bushes on 777 properties and 8,680 seedlings found on second survey. In addition there have been found on resurveys 268,542 sprouting bushes, and 2,087,259 seedlings. These make a grand total of 11,023,422 bushes, and seedlings and sprouting bushes found, of which 10,401,752 have been destroyed in all surveys to September 30, 1924.

A second complete survey has been made in equivalent of about 102 counties. These represent counties covered in the early days of the Campaign when the men were comparatively inexperienced. It is known that small numbers of bushes were missed in the first complete survey. The results in 85 of these counties entirely completed show that about 93 per cent of the total bushes were found in the original complete survey and 7 per cent are being found in the second complete survey. Of this 7 per cent a large proportion are bushes which had been cut down as a result of publicity before field assistants arrived, and so were not found. They are being located now by the sprouts which have developed. The overlooked bushes and sprouts have been responsible for starting destructive local epidemics.

In connection with this campaign some investigational phases are necessary. The study of the spread of stem rust is made as a means of finding offending barberries and testing the efficiency of the survey. The relation of environment and the distribution of common barberries is being studied, particular attention being given to areas of escaped barberries, throughout the 13 States, and also in New England, New York, Pennsylvania, and Virginia, A study of native and introduced barberry species and hybrids is being made to determine their classification and the susceptibility of each to stem rust, as a further means of stem-rust control. Special studies on the effect of chemicals for killing barberries have been made. Both salt and kerosene have been recommended and are being used.

CEREAL COURTER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION).

Vol. 16 November 10, 1924 No. 27

Personnel (Nov. 1-10) and Field Station (Oct. 16-31) Issue

DATE OF ISSUANCE OF CEREAL COURIER

Beginning with the next issue, the Cereal Courier will appear semimonthly, the issues being dated the 15th and last days of each month. This semimonthly issuance will be continued until April 1, on which date the issuance of numbers at 10-day intervals will be resumed:

PERSONNEL ITEMS

Dr. Carleton R. Ball, Senior Agronomist in Charge of Cereal Investigations, returned from the Pacific Coast on November 10.

The week beginning November 26 was spent in California in a study of the rice experiments conducted by the State Agricultural Experiment Station at Cortena and by this Office at Biggs; in conference with the Board of Directors of the California Rice Growers' Association, of which Ernest L. Adams, formerly of this Office, is the President; and in conference with Station officials at Sacramento, Davis, and Berkeley. As a result, the California Station and the Bureau of Plant Industry enter into full cooperation in the conduct of rice experiments in California, subject to the approval of the proper authorities in both cases. The California Station will transfer Carroll F. Dunshee from Cortena to the Biggs Rice Field Station, where he and Jenkin W. Jones each will have immediate charge of certain lines of investigation and joint control of others.

A total of three inches or more of rain in the Sacramento Talley in October has restored pastures and greatly increased the optimisim of the farmers regarding their winter grain crops.

On Saturday, November 1, Doctor Ball visited Stanford University to consult with Dr. C. L. Alsberg, of the Food Research Institute, regarding its researches on starch and possible studies that might be undertaken.

From November 3 to 5, inclusive, Doctor Ball was in attendance on the Western Extension Conference at Tucson, Ariz., representing the eleven States covered by the Rocky Mountain Basin and Pacific Coast regions, where he presented a paper on Food Crops, in the Symposium of Work of Bureau of Plant Industry with Special Reference to Western Crop Production. He also addressed the Agricultural Club of the University on the need of physiological training and research for adequate crop production.

Doctor Ball says that the Extension Conference was one of the most inspiring and business-like gatherings that he has had the privilege of attending. Under the chairmanship of Extension Director Warburton the program moved on schedule time with full opportunity for discussion.

Dr. James G. Dickson, agent in the cereal-disease investigations conducted in cooperation with the Wisconsin Agricultural Experiment Station, at Madison, Wis., came to Washington November 10 to present a paper, entitled "The Relation of Plant Physiology and Chemistry to the Study of Disease Resistance in Plants," at a symposium in connection with the meetings of the American Society of Agronomy on November 10 and 11. Doctor Dickson also will confer with Bureau officials regarding his researches and future plans.

John E. Norton, of Grainfield, Kans., was appointed unskilled laborer on November 1 in connection with the cooperative cereal investigations at Manhattan, Kans., under the direction of John H. Parker. Hewill fill the vacancy caused by the resignation of Fred A. Soderstrom.

VISITORS

Dr. E. M. Freeman, of the University of Minnesota, and collaborator with this Office in cooperative cereal-disease investigations, Edward C. Johnson, Dean and Director of the College of Agriculture and Agricultural Experiment Station, at Pullman, Wash., and H. J. C. Umberger, Dean and Director of the Division of Extension, of the Kansas State Agricultural College, Manhattan, Kans., were visitors at the Office during the meeting in Washington of the American Society of Agronomy, November 10 and 11.

NOTICE

The Office is in receipt of a memorandum from Mr. F. E. Meloy, Assistant in Charge of Property, Bureau of Plant Industry, calling attention to the following facts: When shipments are addressed to an individual in the Department, the railroad company in many instances charges these shipments as personal and will not make delivery to the departmental draymen until after they are identified as official. This delay frequently causes an accumulation of storage charges and prevents prompt deliveries to the several offices.

For this reason official shipments should be addressed to the Bureau of Plant Industry, Department of Agriculture. They can be further marked for the attention of the individual to whom the shipment is to go.

CORRECTION

It is desired to make the following correction in the last sentence of the report by Mr. Chambliss on the condition of the rice crop in the Courier of October 20, 1924 (Vol. 16, no. 25, p. 303). The sentence: "In no place was the rice seriously affected by the continued drought," should be changed to read as follows: Rices grown without irrigation in Alabama and Georgia were affected by the drought. In southwestern Louisiana the commercial rice crop was affected by salt water. The presence of the salt in the irrigation water resulted from the drought.

MANUSCRIPTS AND PUBLICATIONS

The following eight abstracts were approved October 31 and November 3, respectively, for publication in Phytopathology:

The Inheritance of Resistance to Puccinia graminis avenae, by S. M. Dietz.

Alternate Hosts of Puccinia coronata Corda, by S. M. Dietz.

Leaf-Spot of Maize, a Disease Distinct from Leaf-Blight, by <u>Charles Drechsler</u>.

A Leaf-Spot of Redtop Caused by an Apparently Undescribed Species of Helminthosporium, by Charles Drechsler.

Influence of Balanced Nutrient Supply on Susceptibility of Corn Plants to Gibberella saubinetii (Mont.) Sacc., by G. N. Hoffer and J. F. Trost

Rye Resistant to Leaf Rust, Stem Rust, and Powdery Mildew, by E. B. Mains.

The Occurrence of Covered Kernel Smut in Milo, by W. H. Tisdale and L. E. Melchers.

Infection of Barley by <u>Ustilago</u> <u>nuda</u> Through Seed Inoculation, by <u>W. H. Tisdale</u> and <u>V. F. Tapke</u>.

Galley proof of Department Bulletin 1276, entitled "Varietal Experimente with Hard Red Winter Wheats in the Dry Areas of the Western United States," by J. Allen Clark and J. H. Martin, was read November 3.

Page proof of article, entitled "Infection of Barley by <u>Ustilago nuda</u> Through Seed Inoculation," by <u>W. H. Tisdale</u> and <u>V. F. Tapke</u>, for publication in the Journal of Agricultural Research, was read November 10.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (October 26)
Fall seeding of the cereal crops was completed this week. Because of
the heavy rains in the latter part of September and early October seeding
eperations were delayed for more than a week. However, the dry weather of
October permitted continuous seeding from start to finish. Five hundred
and thirty-seven field plats were sown; this represents an increase in number
for all three of the major fall-sown crops, namely, wheat, oats, and barley.
In addition, more than 7,400 nursery rows have been sown for yield test or
genetic study. Fall germination has been slow and uneven, but in the event
of rain, which is now badly needed, it is expected that the crops will go into
the winter with an average stand.

The rate-and-date and seed-bed preparation experiment, which has been in progress for the past six years, has been discontinued, and in its stead there has been begun an experiment for determining the value of several forms of magnesium and manganese when used as a seed treatment.

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (November 3) The fall weather has been very satisfactory so far as fall seeding is concerned, except for a shortage of rainfall. This has not seriously affected the wheat in the nursery but will do so if it does not rain soon.

The threshing of all the oat and barley material is just being completed and a report of the yields can be made soon. Part of the oats were unusually heavy for New York conditions, some yielding at the rate of more than 100 bushels to the acre. Some of the new hybrids which have been made for the purpose of obtaining a Cornellian type lacking the objectionable gray color were among these high yielding sorts. These new hybrids did not outyield Cornellian appreciably, but the indications are that they probably will yield as well. The Cornellian oat was grown rather extensively over the State this past year and gave very good satisfaction.

The varieties of oats and wheat to be used for crossing, as well as seed of some new hybrids, are now being sown in the greenhouse.

Seed for the material to be sown at Davis, Calif., has been shipped there this fall.

In addition to the hybrid wheat material which we sow annually in the plant breeding garden, space was given this year to V. F. Tapke, of the Office of Cereal Investigations, for his studies on the smut of wheat.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (No report)

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (October 31)
The weather for the month of October has been remarkably warm and dry.
Almost the entire corn crop is safely matured in spite of the late planting and backward season. Winter wheat seeding is completed over the State, and the grain is coming up in good condition. Rain would be beneficial at this time.

The yields of wheat varieties in drill-width plats on the Experiment Station field are shown below. Each variety was grown in 8 replicate plats. -

<u>Variety</u>	Number	Bu. per Acre
Harvest Queen	W23	21.0
Michigan Wonder	W31	20.7
Michigan Wonder	W29	20.7
Poole	w49	19.7
Kanred	W104	19.2
Michigan Wonder	W32	19.0
Dietz	W14	18.9
Fulcaster	W18	17.8
Fulcaster	· W84	14.9
Mediterranean	W87	14.4

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

AWOI

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran)
(November 4)

At the beginning of the year it was planned to make an original survey of the following countries: Adams, Repwer, Putton, Hancock, Henderson, Knox, McDonough, McLean, Marshall, Mason, Mercer, Peorla, Ychnyler, Tazewell, Warren and Woodford, and to complete the original survey of Cook County. During the summer on account of the heavy rains and the consequent damage to roads and bridges it was feared that the survey of some of these counties could not be finished this fall. However, because of the conscientious efforts of the field man and the fact that many of them worked over time to make up time lost on account of tad weather, it was possible to complete the survey of all the counties listed above by October 51. Most of the field men have resigned, only two being retained for resurvey in November. The resurvey of DuPage and Whiteside counties will be completed before the end of the year.

The State Department of Agriculture has been conducting an original survey in Vermilion County.

The uredinial stage of stem rust on volunteer onts is quite prevalent in the State at the present time. Several germination tests of the urediniospores do not run higher than ten per cent. In many counties considerable stem rust was present on oats at narvest time, which probably accounts for the general fall injection. It is planned to run germination tests every two weeks.

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Har Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jacksor and E. P. Mains) (No report)

College of Agriculture Purdue University, La Fayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture, Chic State University, Columbus (Barberry Eradication, J. V. Baringer) (to report)

MICE MI

Agricultural College, East Lausing (Barberry Eradication, W. F. Reddy) (No report)

WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. S. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (October 18)
Since October 1 there has been no frost at the Station, although in certain localities slight frosts have been reported. There was one rainy period in the first half of October, but harvesting and seed selection have progressed rapidly. All the broomcorn plats are harvested; the only grain sorghums that remain to be harvested are the milo rate-of-seeding and the July 1 and 15 date-of-seeding plats. Some data are to be taken from the various hybrids; the straight-neck milo nursery remains to be harvested for yields.

Maximum temperature for the first half of October, 89° on the 1st; minimum, 43° on the 5th; precipitation, 1.17 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (No report)

COLORADO

Akron Field Station, Akron (No report)

Agricultural Collage, Ft. Collins (Barberry Eradication, E. A. Lungren) (November 3) In October an educational and publicity course was outlined in cooperation with the agricultural schools of Colorado. A letter was sent to all teachers asking for periods during the school year in which stem-rust studies could be conducted. Most of the teachers replied favorably and are giving three to four periods on stem-rust studies.

Packets of demonstration materials are sent to these schools and there demonstration and laboratory exercises are given. Each packet contains the following: Colored plates Nos. 1, 2, 3 and 4, illustrating stem rust and barberries; a Colorado bulletin; United States bulletins; maps of Colorado and the United States, showing distribution of barberries; specimen envelopes containing infected leaves; and rusted stems of grain containing red and black stages of stem and leaf rust. Infected barberry leaves are retained by each student for reference purposes. Panel exhibits also are sent if desired. It is especially requested that any common barberries found in the community be reported.

By this method it is hoped to find locations of bushes not found on the original survey.

NEBRASKA

Nort Platte Substation, North Platte (George F. Sprague) (No report)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)
(No report)

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)
(No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (November 7) In North Dakota the barberry eradication campaign of 1924 was started on May 26 by placing five men on the farm-to-farm survey. From June 10 to 30, inclusive, seven men were employed. On July 1 the entire force was increased to 28 men. This was reduced to 22 on August 31 and on September 13 to eight. Four men were in the field during October; all field activities ceased on October 31. So far in November eight demonstrations have been made in rural schools.

All but five of the men had had one or more years of experience in barberry eradication. All the experienced men made special efforts to meet people who opposed the campaign. This personal contact proved very satisfactory.

The original survey of the entire State has been completed. Bowman, Slope, Dunn, and Stark Counties were covered this season. In this survey bushes were located on seven properties; two of these locations were traced directly from rust infection in the fields.

In the second farm-to-farm survey approximately 12 counties were completed, or a total of 20.4 counties. During the season 291 bushes were found on 27 properties and 878 sprouting bushes on 63 properties.

Rust appeared on barberries this year about three weeks later than usual. The first infected barberries were located on July 5. A trace of rust was found in the wheat plats of the Agricultural College at Fargo on July 8, and previous to July 25 not more than a trace was found. The period of greatest injury from black stem rust was between July 25 and August 15, the approximate loss for the entire State being between three and four per cent. There was as much as a 10 per cent loss in some of the fields in the northern part of the State where the grain matured late.

Barberry bushes were located in all areas where the heavier infection of stem rust appeared on the grains.

Dickinson Substation, Dickinson (R. W. Smith) (October 15)

The weather this month has departed from normal and most of the days so far have been cloudy and rainy. A precipitation of 3.37 inches of rain has been recorded, or about an inch more than the normal rainfall for the three autumn months. Indian summer weather has now returned, and threshing operations, which have been suspended since October 3, should begin again in a day or two.

Threshing at the Substation was completed before the rain. It is estimated that 20 per cent of the threshing in the county is unfinished. Much of this grain is in the shock and will be injured to some extent by the wet weather.

The ground is in good condition for fall plowing and some is being done in this vicinity. A large quantity of wheat was marketed in Dickinson while it was too wet to thresh.

Winter grain at the Substation which had germinated unevenly before the rain is now much improved in condition. Only a small amount of winter rye had been sown in this locality before the rain, but favorable soil conditions and good prices for rye probably will stimulate more seeding of this crop in spite of the lateness of the season.

Below are given the yields obtained from a date-and-rate-of-seeding experiment with Marquis, Kota, and Nodak wheats. The yields of Nodak, especially for the first two seedings, were reduced considerably by injury from root rot. This variety in ordinary years has averaged about 33 1/3 per cent more than Marquis.

Individual and average yields obtained from a rate-and-date-of-seeding experiment with Marquis, Kota, and Nodak wheats sown at the rate of 3, 4, and 5 pecks per acre on April 19, May 1, and May 15 at the Dickinson Substation, in 1924.

						Rate			ng (pecl				Ì		and the state of t
1	e of	I	Marq	uis		_	Kot				Nodak				
See	ding		4	<u>. 5 </u>		<u>; 5</u>	4	5_		1 3	4	_5			
		A	cre y	ield 4	Aver-			ld	Aver-	Acre	yiel	g V.	ver- 1	Average	nf3
			(bu.)		age	(ਨਾ			age	(b)	u.)	. a,	ge T	Vari	
April	19	16.0	*19.9	25.2	20.4	20.4	24.0	25.5	23.3	13.4	21.7	22.4	19.2	; 2:	
May 1		19.2	23.9	27.8	23.6	21.3	25.7	24.4	23.8	16.9	18.2	22.4	19.2	22.2	
May 1	5	15.6	18.5	16.3	16.8	15.7	18.2	18.3	17.4	18.7	20.5	22.3	20.5	18.2	
Avera	ge	16.9	20.8	23.1	20.3	19.1	22.6	22.7	21.5	16.3	20,1	22.4	19.6	20.5	

^{*} First plat was partly washed out and yield estimated from relative yield of other two varieties.

(November 1) The calm Indian summer weather that prevailed during the last half of October has come to an end today, temporarily at least, with cloudy, cold weather threatening a hard freeze for tonight. Threshing in this county, which was suspended during the rainy weather early in the month of October, was resumed about two weeks ago and is now nearly completed.

An enormous quantity of wheat was marketed in Dickinson in October. Dozens of loads of wheat pass the Substation every week day; 60 loads were counted on one day. This quantity, probably 3, 600 bushels, was hauled to Dickinson on only one of several roads leading to town, over each of which, a similar quantity was hauled.

Considerable fall plowing has been done since the rains made plowing possible and considerable winter rye has been drilled in grain stubble. Winter wheat and rye at the Substation are in good condition although they are short as the result of lateness of germination.

Stand counts have been taken on all varietal plats and nursery rows of winter wheat and rye. Milling and baking samples of about 40 varieties of spring and winter wheat have been sent to Washington for milling, baking, and semolina tests; samples of the same varieties were sent to the State Experiment Station at Fargo for similar tests.

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (November 3) The winter wheat plantings made September 11 and 19 are making good growth.

The weather for the last half of October was exceptionally mild, with no heavy frosts. Maximum temperature, 76° on the 25th; minimum, 31° on the 27th; precipitation, 0.12 of an inch. A temperature of 19° was recorded for Nev. 1. The lowest previously recorded this fall was 29° October 6.

Yields of flax varieties, and of flax-cereal mixtures, grown in triplicate 1/50th-acre plats at the Northern Great Plains Field Station, Mandan, N. Dak., in 1924.

Flax Varieties

C.I.	<u>Variety</u>	Yield (Bu. per acre)
274 179 275 241 13 276 280 178 19	Slove Winona N.D.Resistant No. 52 N.D.No. 40013 N.D.Resistant No. 114 Indian Prince (Argentine) Long No. 79 Chippewa Reserve Stark	7.4 6.9 6.1 5.4 5.3 5.1 4.5 4.7 2.1

Flax and Cereal Mixtures

Crop	Rate of Seeding Lbs. per acre	Yield (Bu. per acre)
Flax	15 ·	2.3
Wheat	10	10.3
Flax	15	1.4
Wheat	20	15.7
Flax	15	1.2
Wheat	30	18.4
Flax	25	3.8
Wheat	10	9.2
Flax	25.	2.3
Wheat	20	15.7
Flax	2 5	1.3
Wheat	30	17.9
Flax alone	25	6.7
Wheat alone	· 60	25.3
Flax	20	4.5
Oats	8	15.1
Flax	20	2.3
Oats	16	25.2
Oats alome	48	42.1

Yield of flaxseed in date-of-seeding-and-tillage-experiment.

Date-of Seeding-and Tillage.

<u>Treatment</u> *	Date of Seeding	Yield (Bu. per acre)
DD 5/1 DD 5/1, 5/15 DD 5/1, 5/15 DD 5/1, 5/15, 6/2	DDHS 4/15 DDHS 5/1 DDHS 5/15 DDHS 6/2 DDHPkS 6/2 DDHS 6/16 PDHS 5/1 PDHS 5/1 PDHS 6/2 PDHPkS 6/2 PDHPkS 6/2 PDHPkS 6/2 PDHPkS 6/2 PDHS 6/16	6.6 8.4 6.2 5.5 7.5 4.7 7.4 7.5 6.6 8.1 3.5

^{*} DD- Double disked; D = Light disking; H = Harrowed; P = Plowed; Pk = Packed with cultipacker; S = Seeded.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (October 31)

The following is a report of yields obtained from the varietal and other experiments conducted at the Judith Basin Substation in 1924. Results from the flax-wheat and the corn experiments are not included.

Yields from quadruplicate, duplicate, and single fiftieth-acte varietal plats of winter and spring wheats, oats, barley, and flax at the Judith Basin Substation, in 1924.

	Winter Wheats	774 7 7
C.I.No.	<u>Variety</u>	Yield
	,	(Bu. per acre
,	(Quadruplicate plats)	,
5146	Kanred	40.9
6935	Newton x Turkey 166B1-6*	40.9
1558	Turkey	40.8
6251	Blackhull	. 39.7
5549	Montana No. 36	39.5
6700 .	Karmont	39.1
6680	Wisconsin Ped. No. 11.825	37.1
1583	Kharkof	36.9
4430	Sherman	35.4
6155	Minturki	35.2
4843	Hussar	34.6
6934	Iobred	28.8
	(Duplicate plats**)	20.0
1553 (Sel.)	Turkey (Parent for 166)	44.2
5298	Alton Sel.* (1442-343)	43.1
1442-15	Kharkof x Newton 163E1-3*	42.5
	Kharkof (Parent for 165)	42.1
3055-159.	Turkey Sel.	41.7
and the second	Newton x Turkey 166B14-2*	41.3
	Marquis x Kanred (bulk)	40.9
	Kharkof x Newton 163E3-10*	40.5

^{*} Awnless.

The yields from the duplicate plats are not entirely comparable to those obtained from the quadruplicate plats.

	Common Spring Wheats	
C.I.No.		Yield . per acre)
3774 4734 1697 3641 7371 4733 6887 7372 7370 6255 7373 6607 6794 6047 6679 6248 4800 3697 2874 3081	Unnamed (from Russia) Federation Baart Marquis Kanred x Marquis 1718B9-11 Hard Federation Marquis x Iumillo IX-15-44 Kanred x Marquis 1718B9-14 Do 1718B8-11 Red Bobs Kanred x Marquis 1718B3-14 Quality Redsask Ruby Ladoga Kota Kitchener Power Haynes	32.7 32.5 32.4 32.0 31.7 31.7 31.5 31.3 31.1 29.6 28.7 28.7 27.7 26.9 26.3 24.7 24.0 21.5 20.7
5007 	Preston (Single plats) (Single plats) Hard Federation x Marquis (bulk) Canada Marquis Gamma Kanred x Marquis 1718B2-14 Do 1718B5-14 Do (bulk) Durum Wheats (Quadruplicate plats) Arnautka Kubanka	17.3 34.6 34.2 32.9 32.5 31.7 30.8
1584 6519	Kubanka 74 Peliss Nodak	26.2 24.9 23.2
	Oats (Quadruplicate plats)	
738 1592 2053 714 2002 751 2024 787 134 742 729 165-4-P-4 165	Lincoln Alexander Markton Silvermine Esa Banner Iogren Richland Swedish Victory Albion Sixty-Day Sixty-Day	77.0 76.0 75.4 74.4 74.3 72.5 71.1 70.3 68.8 68.0 65.0 64.1 62.5

C.I.No.		ield per <i>a</i> cre)
617 716 74.3	(From Prince Edward Island) (From Russia) (From Siberia)	71.9 65.6 60.9
	Barleys (Quadruplicate plats)	
1176 926 1304 690 531 195 261 187 680 620	Meloy Horn Hurst Coast Hannchen White Smyrna Club Mariout Svanhals Franconian Himalaya Himalaya	51.2 45.8 45.7 44.7 43.8 43.5 43.6 39.6 30.5
· ·.	(Duplicate plats)	
1563 244 595	Composite mixture Six-Row July	38.6 38.0 37.6 33.1 - 31.7*
Naked va	erieties. Yield on basis of 60 lbs. per bushel.	
	Flax (Duplicate plats)	
	Selection 19-205 Stark Argentine Long No. 79 N. Dak. No. 40015 Winona Reserve N.D.R.No. 52 N.D.R.No. 114 Slope Chippewa N. Dak. No. 40013	14.2 13.4 13.0 12.9 12.3 11.8 11.6 11.2 11.2

Yields from a furrow-drill experiment with winter wheat grown in quadraplicate fiftieth-acre plats, at the Judith Basin Substation, in 1924.

Furrow	Drill		Ordinary Drill
Rate of Seeding per Acre <u>Pecks</u>	Yield (Bu. per		Yield (Bu. per acre)
		North and Sout	th Direction
2 3 4 5 Aver	32.5 34.8 38.6 39.6 age36.4	· ·	34.9 35.4 37.9 <u>38.4</u> 6.7
		East and West	Direction
. 2 3 4 5 Aver	39.3 40.5 43.9 45.1 42.2		41.9 42.5 43.9 44.9 43.3

Yields from a furrow drill-straw-mulch experiment with winter wheat grown in duplicate tenth-acre plats, at the Judith Basin Substation, in 1924.

Furrow Drill		Ordinary Drill
Rate of Straw	Yield	Yield
Mulch	(Bu. per acre)	(Bu. per Acre)
per acre		
No straw	33.8	32.4
2 tons	33.8 29.8	32.0
•		

Yields from a furrow drill harrowing experiment with spring wheat grown in quadruplicate fiftieth-acre plats, at the Judith Basin Substation, in 1924.

Furrow I	<u>Orill</u>	Ordinary Drill
	Yield (Bu. per Acre	Yield (Bu. per Acre)
Harrowed Not harrowed Average	28.1 <u>28.7</u> 28.4	28.3 30.6 29.5

Yields from a furrow drill harrowing experiment with spring wheat grown in quadruplicate fiftieth-acre plats, at the Judith Basin Substation, in 1924.

Furrow	Drill		Ordinary Drill
•	Yield		Yield
•	(Bu. per Acre)		(Bu. per Acre)
Harrowed	28.1		28.3
Not harrowed Average	<u>28.7</u> 		30.6 29.5

Yields from a furrow drill harrowing experiment with winter wheat grown in fifti th-acre plats replicated ten times, at the Judith Basin Substation, in 1924.

Yield
(Bu. per acre)
Harrowed
39.8
Not harrowed
41.2

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (October 16)

Following an unusually dry summer there has not yet been any precipitation this fall. However, we are sowing winter wheat in dry ground. Mr. Bayles also has nearly finished planting the nursery here and is now planting the nurseries in Morrow and Gilliam counties. Present indications are that our total annual rainfall for 1924 will be less than six inches. We have not yet had four inches of precipitation since the first of the year.

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (November 4) The weather in October was unfavorable for harvesting and threshing of rice. On October 5 and 6, 1.75 inches of rain were recorded. This heavy rain not only delayed the cutting and threshing but increased the expense of the operations. From October 16 to 29 there was an additional rainfall of 1.74 inches, making a total for the month of 3.49 inches. The normal October precipitation for the past 12-year period is 1.05 inches. In spite of the frequent and heavy rains it is estimated that 85 to 90 per cent of the rice crop is now threshed and under cover.

The price of rough rice has varied from \$3.00 to \$3.46 per hundred pounds. Some of the rice threshed since the rains began is soft and not in condition for milling.

Threshing at the Station was finished October 24. Yields varied from very poor to very good, depending upon the methods used in growing the crop.

On October 25 Dr. C. R. Ball, senior agronomist in charge of cereal investigations, V. H. Florell, associate agronomist in charge of the cooperative cereal experiments at Davis, Calif., Frank Adams, in charge of Irrigation Investigations, University of California, C. F. Dunshee, superintendent of the Cortena Station, and Dr. E. B. Copeland of Chico, Calif., were visitors at the Biggs Rice Field Station.

University Farm, Davis (V. H. Florell) (No report)

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

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Vol. 16

November 20, 1924 No.28
Personnel (Nov. 11-20) and Field Station (Nov. 1-15) Issue

PERSONNEL ITEMS

The appointment of <u>Miss Esther S. Erickson</u>, assistant clerk in the cooperative cereal-rust investigations at University Farm, St. Paul, Minn., was terminated November 14; <u>Miss Laura M. Hamilton</u>, at the termination of four and one-half months' leave of absence, has returned as assistant clerk to the position filled temporarily by Miss Erickson.

- Dr. H. B. Humphrey, senior pathologist in charge of cereal disease investigations, returned to Washington on November 14, following a ten days' trip in the course of which he visited experiment stations in Minnesota, Wisconsin, Illinois, and Indiana. There he had opportunity to review the results of the past season's research on a number of cooperative cereal-disease problems. At St. Paul, Minn., he conferred with experiment station officials and with employees of this Office relative to plans for next year's investigation of stem rust of wheat. At Madison, Wis., he considered with H. H. McKinney and his associates plans for the continued study of the rosette disease of wheat and the investigation of root rots of cereals. At Champaign, Ill., and La Favette, Ind., Dr. Humphrey had opportunity to review the results of the past season's work on the root, stalk, and ear rots of corn. At the latter point also he conferred with Prof. H. S. Jackson and Dr. E. B. Mains concerning progress and plans pertaining to the study of leaf rusts of wheat, rye, barley, and corn.
- C. S. Reddy, associate pathologist in charge of bacterial diseases of cereals, returned November 9 from Bloomington and other points in Illinois where he harvested the seed from the cooperative corn-disease plats.
- Dr. E. F. Gaines, cerealist at the State College of Agriculture, Pullman, Wash., and agent in the cereal experiments conducted in cooperation with the Office of Cereal Investigations, came to Washington, D. C., on November 10 to spend two or three months in the preparation of a report on the results of four years' studies of the pathological diseases of cereals.

VISITORS

Among the visitors at the Office Auring the period from November 10 to 20, inclusive, were Dr. W. L. Burlison, head of the Department of Agronomy, of the Illinois College of Agriculture and the Agricultural Experiment Station of the University of Illinois; Director James T. Jardine of the Oregon Agricultural Experiment Station; President W. M. Jardine of the Kansas Agricultural College; Prof. E. D. Merill, Dean of the College of Agriculture, of the University of California; Dr. C. H. Myers, professor of plant breeding of the New York State College of Agriculture at Cornell University; Dr. Silvio Spangenberg, Director of the National School of Agriculture at Casilde, Argentina; T. E. Stoa, assistant agronomist at the North Dakota Agricultural Experiment Station; and Dr. R. W. Thatcher, Director of the New York State and Cornell University Agricultural Experiment Stations.

AMERICAN SOCIETY OF AGRONOMY.

On November 10 and 11 there was held in Washington the Seventeenth Annual Meeting of the American Society of Agronomy. About 200 members registered for the sessions, which were held in the Ebbitt Hotel.

The following papers were presented by members of the Office of Cereal Investigations:

Varieties of Indian Corn in South America, by Frederick D. Richey.

The Collecting of Cereal Varieties in Africa and Asia, by Dr. Harry V. Harlan (Symposium---Agronomic Observations in Foreign Lands)

Why Agronomy Needs Research in Plant Physiology, by Dr. Carleton K. Ball.

The Relation of Plant Physiology and Chemistry to the Study of Disease

Resistance in Plants, by Dr. James C. Dickson.
(Symposium---Plant Physiology and Agronomic Science)

Approximately 110 members attended the annual dirner given at the Ebbitt

Hotel at 6.30 p.m. Monday, November 10. The president, Prof. M. F. Miller,

of Columbia, Mo., gave an address entitled "Agronomic Science and Increased

Production." At the business meeting which followed the dinner C. W. Warburton,

Director of Extension Service, was elected President of the Society for the

coming year. The following four regional vice-presidents were elected:

lst. Vice-President. — Dr. A. G. McCall, In Charge Cf Soil Investigations,
College of Agriculture, University of Maryland, College Park, Md. 1925

2d. Vice-President. — Dr. W. L. Burlison, Head of the Department of Agronomy, College of Agriculture, University of Illinois, Urbana, Ill. 1925-1926

3rd. Vice-Fresident. — Frof. M. J. Funchess, Dean of the Alabama Agricultural and al College, Director of the Alabama Agricultural Experiment Station, Auburn, Ala.

4th. Vice-President. - Dr. E. F. Gaines, Associate Frofessor of Farm Crops, and Cerealist, State College of Washington, Pullman, Wash. 1925-1928

The President and the four vice-presidents constitute the Executive Committee of 1925.

Dr. P. E. Brown, of Ames, Ia., was reappointed Secretary-Treasurer and Dr. R. W. Thatcher, of Ithaca, N. Y., was reappointed Editor.

MANUSCRIPTS AND PUBLICATIONS

Page proof of article, entitled "Segregation and Correlated Inheritance in Crosses Between Kota and Hard Federation Wheats for Rust and Drought Resistance," by J. Allen Clark, for publication in the Journal of Agricultural Research, was read November 14.

Page proof of Department Bulletin 1275, entitled "Varietal Susceptibility of Oats to Loose and Covered Smuts," by George M. Reed, Marion A. Griffiths, and Fred N. Briggs, was read November 17.

Farmers' Bulletin 1414, entitled "The Rosette Disease of Wheat and its Control," by Aaron G. Johnson, Harold H. McKinney, Robert W. Webb, and Clyde E. Leighty, was received from the Government Printing Office November 13.

The article, entitled "The Resistance of Oat Varieties to Stem Rust," by William W. Mackie and Ruth F. Allen, has been published in the Journal of Agricultural Research, v. 28, no. 7, p. 705-720, 2 pl., 1 fig. May 17, 1924. (Received from the Government Printing Office November 15, 1924.)

The article, entitled "The Inheritance of Pubescent Nodes in a Cross Between Two Varieties' of Wheat," by H. H. Love and W. T. Craig, appears in the Journal of Agricultural Research, v. 28, no. 8, p. 841-844. May 24, 1924. (Received from the Government Printing Office November 19, 1924.)

Bulletin 18, of the Department of Agriculture of Ohio, Division of Plant Industry, entitled, "The Relation of Common Barberry Bushes to the Occurrence of Black Stem Rust on Wheat and Other Cereals in Ohio," by John W. Baringer, was received November 20. (This bulletin reports results of investigations conducted in cooperation with the College of Agriculture, of the Ohio State University, and the Office of Cereal Investigations, U. S. Dept. of Agriculture.)

Attention is called to the following memorandum from the Office of the Secretary:

November 17, 1924.

MEMORANDUM NO. 508

Federal Horticultural Board

Dr. M. B. Waite, Senior Pathologist in charge of Fruit Disease Investigations, Bureau of Plant Industry, is hereby appointed a member of the Federal Horticultural Board to fill the vacancy caused by the resignation of Dr. Wm. A. Orton from the service of the Department.

The Board, as now constituted, is as follows:

C. L. Marlatt, Chairman, George B. Sudworth,

W. D. Hunter,

K. F. Kellerman.

M. B. Waite,

R. C. Althouse, Assistant to Chairman.

Howard M. Gore. Acting Secretary.

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (R. R. childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love)
(No report)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (No report)

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (Nore port)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Naver) (No report)

AWOI

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) (No report)

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations, J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Purdue University Agricultural Experiment Station, La Favette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)
(No report)

WISCONSIN

Adricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, O. A. Aamodt) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (November[13]) The active survey for this season is about completed. In 1924 the work consisted exclusively of second survey; 13.70 counties were completed. Of these, the Federal forces surveyed approximately 9.50 counties and the State 4.50. A total of 1,722 bushes were found on 127 properties. Of these 399 bushes were escapes.

In connection with the survey activities considerable publicity was conducted. A total of 44,000 circular letters were sent out. Demonstrations were held at 35 county fairs, and two large demonstrations were installed at the Minnesota State Fair, which had a total attendance of 413,623 people. Twenty-eight window displays were placed in 21 towns in eight counties 12,681 pieces of literature and 300 barberry specimen envelopes were distributed. This is merely a partial summary of the publicity.

Early in the season five rust patrols were established. Observations were made every three to five days on 167 fields which consisted of 26 wheat fields, 41 cats, 16 barley, 18 rye, eight wheat and cats, and seven barley and oats. While these patrols obtained some very interesting data on the general development of the rust, they did not work out satisfactorily for the finding of missed barbcery bushes. Only one planting was found with this method. On the other hand, stem-rust surveys in Dodge, Steele, Waseca, Blue Earth, and Brown counties gave evidence that the simultaneous survey system could be improved so that it would be effective in finding missed barberry bushes. Because of the lack of time and the favorable conditions for the development of rust it was necessary to expedite the survey. Consequently, no effort was made to find the bushes by local epidemics. However, in checking the location of the barberry bushes found in second survey with the plotted local epidemics, several interesting correlations were found. As a result, tentative plans are being made to use the following method next year. A simultaneous survey squad of at least six cars will make a rust survey of one county in a day. They will give their data to two more teams who will check the local infections for barberry the next day. From evidence obtained this year, this method ought to enable us to find missed bushes. The only severely rusted fields which we found in souther Minnesota this year were in the vicinity of barberry bushes. A total of thirtynine locations were found where it was evident that common barberry had spread stem rust to adjacent grasses and grains. Of this number, three locations of common barberry were found by noticeable local stem rust epidemics. The most outstanding of the three instances, was the tracing of a gradually increasing intensity of stem rust on cats for seven miles into an adjacent county where the bushes had just been destroyed.

GREAT PLAINS AREA (South to North)

OKLAHOMA .

Woodward Field Station, Woodward (J. B. Sieglinger) (November 17)
The first killing frost of the fall occurred November 7, the thermometer registering 27°. Threshing sorghums had been progressing rapidly until the rains of the 13th, 14th and 15th prevented hauling. With favorable weather this week the plat threshing should be completed.

B. E. Rotheeb, formerly in charge of grain-sorghum and broomcorn investigations, now assistant marketing specialist, Bureau of Agricultural Economics, and H. J. Clemmer, Superintendent of Dalhart Field Station, Dalhart, Tex., were visitors on October 27 and 28.

From yields of the date-of-seeding experiments already computed, Reed kafir, C. I. No. 628, will outyield the Sunrise kafir, C. I. No. 472, in grain.

Maximum temperature for November to date 87° on the 5th; minimum 27° on the 7th. Precipitation for October, 2.29 inches and for November to date, 1.59 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (November 15)

The field activities on the Cereal Project are being completed this week. All of the sorghums have been threshed and recleaned and the weights rechecked. The sorghum ground has been roughened up with a lister to prevent soil blowing. The straw for the top dressing on winter wheat was applied last week.

This year an increase field of Dawn kafir was divided up into 400 two-rod rows. The crop weight and the grain weight for each individual row of kafir has now been recorded. The data will be used in making a study of the yield variations occurring between rows. A grance at the data indicates a rather wide variation between individual rows. Just what this variation will be when the individual rows are grouped into larger units and systemically arranged is the next problem.

Three days last week were spent in an adjoining county looking over farm products at three community fairs. It was an excellent opportunity for learning something of the farmers' problems in the matter of agricultural seed. These local fairs stimulate much interest in methods of farming and the production of better seed.

The weather remains dry and cold. In this section the winter will no doubt prove a severe test for most of the winter wheat, unless it is seeded in a well prepared seedbed. Over most of Kansas there has been sufficient moisture, however, to put the wheat in good condition for winter.

Beginning next week the writer will continue the preparation of the annual report of the current year.

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)
(No report)

NEBRASKA

North Platte Substation, North Platte (G. F. Sprague) (No report)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No report)

SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (November 8) The original survey in South Dakota was completed in October. The task of furnishing the original survey in the State was left to the State forces with Rush B. Locke, leader in charge. About 22,000 square miles of territory in Lawrence and parts of Pennington, Custer, and Fall River counties have been surveyed since July 1. Since practically all of this territory was in the Black Hill's region travel by car was very difficult. When cars could no longer be used for surveying, the work was completed on foot.

Considering the amount of native shrubbery the results in these counties are very gratifying. A total of 499 harmful barberries on 23 properties was found and destroyed. The State forces also found 126 escaped bushes and 212 seedlings in a resurvey of part of Fall River County. This indicates that the escaped-bush problem in western South Dakota may be of considerable importance in the future.

Federal forces have covered 5.48 counties in second survey since July 1. In these counties 205 bushes have been found on 37 properties, many of these being found in areas known to be rust centers in 1923.

NORTH DAKOTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)
(No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (No report)

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.) (November 17) The weather for the first half of November has been generally mild for this time of year. Minimum temperatures have generally ranged between 17 and 33 degrees except for three days, November 11 to 13, when minimum temperatures around zero were recorded.

The minimum temperature for the period was -1° on November 12; maximum, 53°, November 9; precipitation, 0.01 of an inch in the form of a light snow.

Some progress has been made on the tabulation of data for the 1924 report.

MONTANA

Judith Basin Substation, Moccasin (R. W. May) (No report)

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. W. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (No report)

Agricultural Experiment Station, Perkeley (F. N. Briggs) (No report)

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CERIAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

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Vol. 16

November 29, 1924
Personnel (Nov. 21-29) and Project Issue

No. 29

PERSONNEL ITEMS

Ernest L. Adams, formerly connected with the Office of Cereal Investigations, now President of the Rice Growers' Association of California, with headquarters at Sacramento, writes on November 24 that weather conditions for harvesting the rice crop are more favorable than at the time of Doctor Ball's visit in October. About 95 per cent of the crop has been threshed, and if the present favorable weather continues the crop should all be threshed within the next few days. The Rice Growers' Association is successfully marketing the crop. So far 60 per cent of the crop has been sold,—an unparalleled selling record at this season of the year; price levels have reached \$3.90 for No. 1 paddy. From present indications, Mr. Adams believes there should be no carry-over of rice in the United States this year, which will strengthen California market conditions for next year's crop.

Dr. A. M. Brunson, associate agronomist in charge of cooperative corn experiments at the Kansas Agricultural Experiment Station at Manhattan, arrived in Washington November 22. He will engage in the preparation of manuscripts and confer with Bureau Officials concerning the progress of the cooperative corn experiments.

Charles W. Hungerford, plant bathologist, at the University of Idaho, and agent in the stripe-rust investigations conducted in cooperation with the Office of Cereal Investigations, will come to Washington from Moscow, Idaho, early in December to confer with Bureau officials regarding rust investigations and to prepare manuscript on results obtained in the investigations. On his way to Washington Mr. Hungerford will confer with officials of the agricultural experiment stations at Madison, Wis., and La Fayette, Ind., regarding cereal disease investigations. Mr. Hungerford will remain in Washington about two months.

Merle T. Jenkins, assistant agronomist in Charge of the corn-breeding investigations conducted cooperatively between the Office of Cereal Investigations and the Iowa Agricultural Experiment Station, will leave Ames about December 7 to confer with corn specialists at Bloomington and Urbana, Ill., and La Fayette, Ind., with reference to methods of testing strains of corn under controlled conditions in the greenhouse; Mr. Jenkins then will proceed to Washington, D. C. where he will spend a month or more in the preparation of reports and manuscripts and in conferring with reference to the progress of his research.

Dr. E. C. Stakman, associate plant pathologist at the Minnesota Agricultural Experiment Station, and agent in the cereal-disease investigations cooperative with the Office of Cereal Investigations, will come to Washington in December to discuss with officials of the Bureau of Plant Industry, the Weather Bureau, and the War Department plans for next year's studies in epidemiology and to prepare a paper on the epidemiology of stem rust. Doctor Stakman will remain in Washington about three weeks.

VISITORS

Clarence F. Lea, M. C., of Santa Rosa, Calif., was an Office visitor last week to discuss rice investigations in California.

MANUSCRIPTS AND PUBLICATIONS

An article, entitled "Leaf-Spot of Maize Causeá by Ophiobolus heterostrophus n. sp., the Ascigerous Stage of a Helminthosporium Exhibiting Bipolar Germination," by Charles Drechsler, was submitted November 29 for publication in the Journal of Agricultural Research as a joint contribution from the Office of Cereal Investigations and the Office of Cotton, Truck and Forage-Crop Disease Investigations.

Galley proof of article, entitled "Studies on the Inheritance of Farliness in Wheat," by <u>Victor H. Florell</u>, for publication in the Journal of Agricultural Research, was read November 22.

Page proof of Department Bulletin 1299, entitled "Relative Resistance of Wheat to Bunt (<u>Tilletia tritici</u>) in the Pacific Coast States," by <u>W. H. Tisdale</u> et al., was read November 24.

Second page proof of article, entitled "Segregation and Correlated Inheritance in Crosses between Kota and Hard Federation Wheats, for Rust and Drought Resistance," by J. Allen Clark, was mead November 29.

The article, entitled "An Ascigerous Stage and Synonomy for Fusarium moniliforme," by Grace O. Wineland, appears in the Journal of Agricultural Research, v. 28, no. 9, v. 909-922, 2 pl., 6 fig. May 31, 1924. Literature cited v. 921-922. (Received from the Government Printing Office November 21) (The investigations on which this paper is based were conducted as a cooperative project between the Office of Cereal Investigations, Bureau of Plant Industry, United States Department of Agriculture, and the Wisconsin Agricultural Experiment Station.)

Farmers' Bulletin 1328, entitled "Production of Seed Flax," by A. C. Dillman, was received from the Government Printing Office November 26.



CEREAL COURIER

Official Messenger of the Office of Cereal Investigations L Bureau of Plant Industry, U. S. Dept. of Agriculture (NOT FOR PUBLICATION)

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No. 30

Vol. 16

December 15, 1924
Personnel (Dec. 1-15) and Field Station (Nov. 16-30) Issue

PERSONNEL ITEMS

Jenkin W. Jones, associate agronomist in charge of rice experiments at the Biggs Rice Field Station, Biggs, Calif., writes on December 1 that on the recommendation of President W. W. Campbell of the Board of Regents of the University of California, at a meeting held November 22, he was appointed Associate in Irrigation Investigations and Practice, without salary, effective November 1, 1924.

V. F. Tarke, associate pathologist in smut investigations, will return to Washington from Ithaca, N. Y., about December 20 to make observations on his smut experiments in the greenhouse at Arlington Farm and to do special library work. He will return to Ithaca in January.

VISITORS.

H. H. Lafferty and J. D. Leavengood, field assistants in barberry eradication in Ohio during the past season, were visitors at the Office December 9. They were traveling by automobile to Florida.

Dr. P. H. Rolfs, former director of the Florida Agricultural Experiment Station, now developing a program for agricultural education for the State of Minas Geraes, Brazil, with headquarters at Viçosa, was an Office visitor December 15 and discussed cereal varieties likely to be adapted to their subtropical climate with rainy summers and dry winters.

MANUSCRIPTS AND PUBLICATIONS

A brief manuscript, entitled "Carbohydrate Storage in the Endosperm of Sweet Corn," by Lois Lampe and Marion T. Meyers, was approved December 1 for publication in Science.

A manuscript, entitled "A Report of the Barberry Eradication Campaign in South Dakota, 1924," by <u>Raymond O. Bulger</u>, was submitted December 4 for publication in the Report of the South Dakota State Entomologist.

A brief article, entitled "A Handy Pollen Carrier," by <u>C. E. Leighty</u> and <u>N. J. Sando</u>, was approved December 9 for publication in the Journal of Heredity.

The manuscript, entitled "Certain Aspects of the Virus Diseases," by H. H. McKinney, which was submitted September 23, 1924, for publication as a Department Circular was withdrawn and approved for publication in Phytopathology, in order to obtain more prompt publication.

Galley proof of Department Circular 332, entitled "Chemical Eradication of the Common Barberry," by Noel F. Thompson, was read December 1; page proof was read December 11.

On December 10 galley proof was read of <u>J. C. Brinsmade's</u> contribution, entitled "Investigations with Flax and Cereals," to Department Bulletin 1301, entitled "Report of the Northern Great Plains Field Station for the Ten-Year Period, 1913-1922," prepared by the Office of Dry-Land Agriculture.

Galley proof of Department Bulletin 1316, entitled "Some Effects of Sodium Arsenite When Used to Kill the Common Barberry," by E. R. Schulz and Noel F. Thompson, was read December 11.

Page proof of article, entitled "Studies on the Inheritance of Earliness in Wheat," by Victor H. Florell, was read December 11.

The paper entitled, "Bacterial Blight of Rye," by <u>C. S. Reddy</u>, <u>James Godkin</u>, and <u>A. G. Johnson</u>, appears in the Journal of Agricultural Research, v. 28, no. 10, p. 1039-1040, 1 pl. June 7, 1924. (Received from the Government Printing Office December 4, 1924)

The article, entitled "Aecial Stages of the Leaf Rusts of Rye,

Puccinia dispersa Erikss. and Henn., and of Barley, P. anomala Rostr., in the

United States," by E. B. Mains and H. S. Jackson, has been published in the

Journal of Agricultural Research, v. 28, no. 11, p. 1119-1126, 1 pl. June 14,

1924. Literature cited, p. 1126. (Received from the Government Printing Office,

December 4, 1924)

FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (Scuth to North)

GEORGIA -

State College of Agriculture, Athens (R. R. Childs) (No report)

VIRGINIA

Arlington Experiment Farm, Rosslyn (J. W. Taylor) (No report)

NEW YORK .

Cornell University Agricultural Experiment Station, Ithaca (H. H. Love) (December 3) The morth of November has been similar to that of October in that there was considerable deficiency in the rainfall here. The weather of the two months has been unusually dry, with the result that fall seeding is not going into the winter in as good shape as we had hoped. The soil on the wheat nursery had gotten so dry that it was cracking badly, a condition most unusual in New York State. In order to overcome some of the serious effects we had begun to hoe the nursery, but before the work was completed the ground froze so that it was not possible to go on. On Friday night, November 28, there was a slight snowfall, which will have some beneficial effect. The snow that fell at that time and later amounted to between two and three inches.

Weighing of the yields of the rod rows of oats has just been completed and the data tabulated. The results are very gratifying, particularly from the standpoint of the white and yellow-kernelled selections from some of the Cornellian crosses. These results support our earlier statement that we apparently had obtained some hybrids of Cornellian which would yield as well as Cornellian and lack the objectionable gray kernel color of that variety.

The seeding of the material in the greenhouse is nearly all completed. Germination of some of this material has been poor.

Samples of inspected oats and barley are now being received for laboratory inspection. After this is completed, seed lists containing the names of growers of the recommended varieties will be prepared.

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (J. Mitchell Jenkins) (November 25)
The dry weather of the summer extended into October and was more intense
than during any of the spring and summer months. There was no precipitation
during the entire month; the average for the past 14 years for the month of
October was 4.13 inches. The driest October previously recorded was in 1917
when the total precipitation was only 0.69 of an inch.

There was no rain woth mentioning until November 20, when 1.86 inches were recorded; this was the first rain of an inch or over since April 11.

Harvesting of all station plats was completed in October, also the harvesting of the nursey rices, with the exception of a few late maturing varieties.

Soybeans were harvested the third week in October. This was much earlier than in previous years, probably owing to the extremely dry weather and the unusually cold weather. On the first of October the temperature was as low as 40° F. Frost was reported in certain localities.

During the latter part of October and the first part of November the superintendent was at the State Fair at Shreveport, assisting in installing and explaining a station exhibit. Rice entries were not so numerous as last year. There was marked improvement, however, in the quality of the material exhibited. The general agricultural exhibit of farm crops, was more extensive than in previous years. The abundance and high quality of hay exhibited was the result of good fall weather for curing operations.

Rice threshing was completed on the station November 20, just before the rain. The yields as a whole are kigher than last year and the quality of grain is excellent.

Fall plowing was begun November 25. Plowing would have been impossible before the rain of the 20th, especially on land that was in rice this season, because of the rapid drying out of the soil after the removal of the irrigation water.

Agricultural Experiment Station, Baton Rouge (H. Stoneberg) (No report)

MISSOURI

Agricultural Experiment Station, Columbia (L. J. Stadler) (No report)

TENNESSEE

Agricultural Experiment Station, Knoxville (L. S. Mayer) (No report)

IOWA

Agricultural Experiment Station, Ames (M. T. Jenkins) (No report)

Agricultural Experiment Station, Ames (Investigation of Crown Rust of Oats, S. M. Dietz) (No report)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) (November 21)
The field work for the season was completed November 21.

With ideal fall weather it has been possible to finish the second survey in Allamakee, Lyon, Mitchell, and Calhoun counties.

Since October 5 educational and publicity program has been conducted chiefly with Smith-Hughes Agriculture classes. Many original plantings have been found through leads received from members of these classes. In one of the counties visited by the publicity man an area of escaped bushes was located by a high school agricultural class. To date much interest has been shown in our educational program, which will be continued until December 31.

ILLINOIS

Funk Bros. Seed Company, Bloomington (Corn Root and Stalk Rot Investigations J. R. Holbert) (No report)

Post Office Building, Urbana (Barberry Eradication, G. C. Curran) (No report)

INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Root, Stalk, and Ear Rots, G. N. Hoffer) (No report)

Furdue University Agricultural Experiment Station, La Fayette (Leaf Rust Investigations, H. S. Jackson and E. B. Mains) (No report)

College of Agriculture, Purdue University, La Fayette (Barberry Eradication, W. E. Leer) (No report)

OHIO

College of Agriculture, Ohio State University, Columbus (Barberry Eradication, J. W. Baringer) (No report)

MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy) (No report)

Wisconsin

Agricultural Experiment Station, Madison (Wheat Scab Investigations, J. G. Dickson) (No report)

Agricultural Experiment Station, Madison (Wheat Rosette and Take-All Investigations, H. H. McKinney) (No report)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (No report)

MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding Investigations, H. K. Hayes and C. A. Aamodt) [December 8]

Yields of spring wheat varieties and hybrids grown in replicated rodrow nursery experiments at University Farm. St. Paul. Minn., in 1924.

tow harsery experim		E O J. CALLES	and the second s		
Wasiety	Marsery Stock	Tield,	* Variety	Nursery Stock	Yield
Marq. x Bluestem				No.	
Garnet	III-24	33.0	Marq.x Bluestem	II-15-39	26.1
Kota Nat. Cross	II-18-20	32.7	Red Bobs	1	26.1
Marq.x Kanred	B2-5	31.5	Kota Nat. Cross	11-18-36	25.9
Marq.x Kanred	II-18-44	31.2	Marq.x Kanred	II-17-28	25.9
Marq.x Kanred	II-17 - 40	30.9	Kota Nat. Cross	II-18-16	25.8
Marq.x Kanred	II-17 - 45	30.5	Kota Nat. Cross	II-18-28	25.7
Marq. x Kanred	II-18 - 8	30.3	Kota Nat. Cross		25.6
Marquis (299)	Check	30.3	Marq.x Kanred	II-17-35	25.6
Marq.x Kanred	B8-11	29.9	Marquis (371)	Check	25.6
Marq.x Kanred	II- 18 - 15	29.8	Marq.x Kanred	II-18-12	25.5
Ruby	ITI-18	29.8	Marq. x Kota	II-19 - 9	25.4
Marq.x Bluestem	II-15-41	29.7	Marquis (281)	Check	25.4
Marq.x Preston	II-15-13	29.6	Marq.x Kanred	II-17-25	25.4
Kota Nat. Cross	II-18-21	29.5	Kota x Ruby	II-19-19	25.3
Marq.x Kanred	II17-37	29.4	Marquis (149)	Check	24.7
Marquis (185)	Check	29.3	Kota Nat. Cross		24.7
Marq.x Kanred	B9-14	29.3	Kota Nat. Cross		24.6
Marq.x Kanred	II-17-36	29.0	Marquis (263)	Check	24.6
Marq.x Preston	II-15-24	29.0	Marquis (203)	Check	24.4
Marquis (335)	Check	28.8	Kota Arny's	Bulk	24.2
Marq.x Kanred	II-15-8	28.7	Marq.x Kota	II-19-12	24.2
Marq.x Kanred	II-17-23	28.7	Kota x Ruby	II-19-18	24.2
Kota Nat, Cross	II-18-33	28.6	Kota x Ruby	II-19-23	24.1
Marq.x Kanred	II-17- ¹ 43	28.6	Marq.x Iumillo	II-15-51	24.0
Marq.x Kanred	II-15-57	28.6	Kota Nat. Cross		24.0
	J.D.149.124	28.6	Marq.x Kanred	II-17-14	24.0
Marq.x Kanred	II-17-22	28.4	Kota Nat. Cross		23.9
Marq.x Preston	II-15 - 16	28.1	Kota x Ruby	II-19-26	23.7
Marquis (353)	Check	27.9	Marq. x Kota N.		23.7
Kota Nat. Cross	II-18-17	27.8	Kota Nat. Cross		23.6
Marquis (239)	Check	27.8	Marq. x Kanred	II-17-13	23.6
Marq. x Kota	II19-11	27.5	Marq. x Kanred	II-17-15	23.1
Marquis (167)	Check	27.4	Marq. x Kanred	II-17-8	23.0
	Check	27.1	Kota x Red Bobs		22.9
Marquis (317)	Check	27.0	Marq. X Iumillo	11-15-44	22.7
Marq. x Kota N			Marq. x Kanred		22.6
Marq. x Kanred	11-1 <i>(</i> -4	27.0	Marq. x Kanred	11-1/-10	22.5
Marq. x Kanred	11-1(-55	2(.0)	Marq. x Kanred	II-I/-/	22.4
Kota Nat. Cross	II-18-31			II-17-29	22.3
Marquis (131)	Check	26.9		II-19-29	21.4
Marquis (389)	Check	26.9		II-17-16	21.4
Marq.x Kanred	B9-11	26.6	Mana w Tamilla	II-17-19	21.1
Kota Nat. Cross	-			II-15-55	20.7
Marquis (413)	Check		_	II-15-59 II-15-43	20.6
Reward	III-24	- (Marq.x Iumillo	III-15-45	19.0
Marq.x Kanred	II-17-3		Pentad		17.3
Kota Nat. Cross			Mindum	I-00-52	16.7
Marq.x Kanred			Monad Kubanka	1-18-25 III-20	16.5
Marq.x Kota N Kitchener		26.2	nubalika "o	111-20	15.7
* = Average of 3		-U•-			
	TODITOROTOHO!				

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust Investigations, E. C. Stakman) (No report)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (No report)

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (J. B. Sieglinger) (December 2)
In the last half of November weather conditions have keen excellent for hauling in and threshing sorghums. The weather is gradually becoming colder, as is to be expected.

Threshing of the grain-sorghum plats is practically completed; a large quantity of the threshed grain must be fanned before the yields are available for tabulation.

On a personal trip to Stillwater, Okla., at Thanksgiving the writer noted that wheat is making rank growth, also that most of the row crops are either headed or in the stack.

Maximum temperature for last half of November, 74° on the 22nd; minimum, 25° on the 27th. Total precipitation for November, 1.90 inches.

KANSAS

Agricultural Experiment Station, Manhattan (J. H. Parker) (No report)

Hays Branch Experiment Station, Hays (A. F. Swanson) (November 24)

Yields of spring wheat varieties grown in replicated plat experiments at Hays, Kans., In 1924.

Common Wheats	Yield (Bu.per A.)	Durum Wheats	Yield (Bu.per A.)
Quality Prelude Hard Federation Marquis Kota	20.2 19.6 15.2 10.8 7.7	Arnautka 6881 Mindum Marounai Kubanka	15.4 11.9 9.6 9.2

COLORADO

Akron Field Station, Akron (No report)

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (No report)

NEBRASKA

North Platte Substation, North Platte (G. F. Sprague) [December 8]

Yields of spring wheat varieties grown in replicated plat experiments at North Platte, Nebr., in 1924.

Common	Wheats	,	v s s	Durum Wheats	Yield
Variety	C.I.No.	Yield	Variety	C.I.No.	(Bu.per A.)
Progress	6902	(Bu.per A.) 24.3	Kubanka	1440	14.5
Quality	6607	20.1	Nodak	6519	13.5
Kota	5878	18.1	Peliss	1584	13.0
Ruby	6047	17.8	Arnautka	6881	11.1
Hard Federation	4733	15.6			
Red Bobs	6255	14.3	•		
Marquis	3641	13.6			
Prelude	4323	13.4			

Yields of spring wheat varieties and hybrids grewn in replicated rodrow nursery experiments at North Platte, Nebr., in 1924.

Cross :	Hybrid No.	C.I. No.	Ave. Yield (Bu. per A.)
Kota x Hard Federation Marquis x Kanred Marquis x Hard Federation Hard Federation x Kota Marquis x Kota Marquis x Kanred	20148 A 1-16-4 1718 B 6-10 21202 A 1-85 201498 A-57-1 1718 B 3-14	6898(1656) 7373	37.0 36.9 36.6 35.6 34.8 34.4
Marquis x Kanred Marquis x Kota Kota x Hard Federation Marquis x Kanred Marquis x Kanred Marquis x Kanred	1718 B 2-5 20148 A 1-16-7 1718 B 9-14 1718 B 5-14 1718 B 8-11	7372 7370	34.0 33.4 32.8 32.6 32.6
Hard Federation x Kota Marquis Marquis x Kanred	201498 A 2-55-2 1718 B 5-1	3641	32.5 31.6 31.4
Marquis x Kanred Hard Federation x Marquis Hard Federation x Marquis	1718 B 9-11 21203 C 2-10 21203 C 2-8	7371	31.2 31.0 30.8
Marquis x Kota Kota x Kanred Kota x Hard Federation Marquis x Hard Federation Hard Federation x Marquis Hard Federation x Kota	1918 B 1-12-1 20148 A 1-16-2 21202 A 1-63 21203 C 1-4 201498 A 1-25-2	6899	30.8 30.6 30.5 29.6 29.4 28.6 28.6
Hard Federation Kota x Red Bobs Hard Federation x Marquis Kota x Hard Federation	21203 C 2-76 20148 A 1-43-2	4733 6897	28.3 27.8 27.6 27.4
Marquis x Kota Kota Kota x Hard Federation	20148 A 1-16-5	. 6901 58 7 8	26.3 26.2 24.6
Marquis x Iumillo Hard Federation x Marquis Marquis x Hard Federation Marquis x Hard Federation Kota x Hard Federation	II-15-44 21203 C 1-71 21202 A 1*26 21202 A 2-37 20148 A 1-27-2		25.1 24.0 22.8 22.4 19.8

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) (No recort)

SOUTH DAKCTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (No report)

NORTH DAKCTA

Agricultural Experiment Station, Agricultural College (W. E. Brentzel)
(No report)

Agricultural Experiment Station, Agricultural College (Barberry Eradication, G. C. Mayoue) (No report)

Dickinson Substation, Dickinson (R. W. Smith) (December 5)
The weather of the month of November was unusually mild and the ground
was free from snow except for about an inch that did not remain long. During
a brief cold spell the temperature dropped to 6 degrees below zero on the 13th.
On the 19th a maximum of 6 5 degrees was reached. The total precipitation for
the month was only 0.12 of an inch. The total precipitation for the year to
date is 14.35 inches, which is about an inch below normal. The favorable
distribution of the rainfall, combined with a cool growing season, and following
an unusually heavy precipitation caused the year 1924 to be a very successful
crop year for this State.

Seed grain of all cereal varieties for plat experiments has been cleaned in readiness for spring seeding.

Progress is being made on the annual report.

Below are given the yields obtained from the flax-wheat mixtures experiment in 1924.

Yields obtained from flax-wheat mixtures grown in duplicate fifty-sixth acre plats on the Dickinson Substation, in 1924.

Date of seeding- May 5.

	e of seed	ing acre)	Yield Flax (per A.)	Wheat	Relative Yield
1.	Flax 15	Wheat 10	5.7	9.7	82
2.	Flax 15	Wheat 20	4.9	12.6	85
3.	Flax 15	Wheat 30	3. 8	19.2	96
4.	Flax 25	Wheat 10	7.7	8.5	95
5.	Flax 25	Wheat 20	6.2	13.8	100
6.	Flax 25	Wheat 30	4.3	15.6	89
7.	Flax 25		11.4		100
8.		Wheat 60		30.4	100

Northern Great Plains Field Station, Mandan (J. C. Brinsmade, Jr.)
[December 6]

Average dates of heading and ripening, height, stem-rust infection, and yield per acre of 28 hybrids and varieties of wheat grown in three systematically replicated 16-foot rows at the Northern Great Plains Field Station, Mandan, N. Dak., in 1924.

Variety or cross	Hybrid number	No. he	Date aded	Date Ripe	Height	Per cent stem rust	Yield (Bu.perA.
Kanred x Marquis Kota x Marquis Kanred x Marquis Kota nat. cross Kanred x Marquis Kota x Hard Federation Kanred x Marquis Kota Kota, nat. cross Kota x Hard Federation do Kanred x Marquis Hard Federation x Kota Marquis x Iumillo do Marquis Marquis x Kanred Kota x Hard Federation do. 1 Hard Federation x Kota Kota x Hard Federation Hard Federation Hard Federation Hard Federation	1718 B 3-14 II-19-2 8 A1-27-2 8 A1-16-1 II-19-7 20149 A1-57-1 II-15-44 II-15-59 1718 B 9-14 8 A 1-16-7 8 A 1-16-2 9A 1-25-2 8 E 9-4 9 A 2-35-3 9 A 2-55-2 8 A 1-16-5 9 A 2-1 8 A 43-2	7371 6898 7374 7376 7370 —— 7373 5878 7377 —— 7375 —— 6887 7378 3641 7372 —— —— —— —— 4733	7-13 7-14 7-16 7-15 7-18 7-14 7-15 7-10 7-11 7-12 7-11 7-12 7-11 7-12 7-10 7-10 7-11 7-7 7-7 7-7 7-9 7-10 7-7 7-7	8-17 8-16 8-19 8-18 8-19 8-18 8-16 8-16 8-16 8-14 8-16 8-17 8-17 8-17 8-17 8-14 8-17 8-14 8-13 8-13 8-14 8-15	34 36 36 37 37 38 37 38 37 38 38 38 38 38 38 38 38 38 38 38 38 38	1 28 22 7 96 7 3 1 2 3 3 3 5 5 7 1 4 7 6 8 7 8 6 2 2	28.5 26.9 26.7 25.4 25.4 24.6 24.6 24.5 23.5 22.8 22.8 22.8 22.8 22.1 21.7

Average of only 2 rows

Only one row

J

Yields obtained from the Karred x Marquis and miscellaneous nursery grown at the Judith Basin Substation, Moccasin, Mont., in 1924.

·Cross	Hybrid No.	C. I. No.	Yield (Bu. per acre)
Kanred x Marquis do Marquis (check) Preston (Sel. No. 2103) Kota natural hybrid Marquis x Iumillo do Kota natural hybrid	1718 B 8-11 B 9-14 B 3-4 II-18-8 B 2-14 B 9-11 II-15-58 II-19-7 B 5-14 II-15-57 B 3-14 II-15-59 II-15-59 II-19-1	7370 7372 7374 7371 6885 7375 6884 7373 3641 3081 7377 6887 7378 7376	47.8 46.4 44.6 44.0 42.9 41.5 40.1 38.3 37.9 37.8 37.8 37.8 37.3 36.9 36.6 32.8 32.4 28.1 26.7

Yields of flax-wheat mixtures at the Judith Basin Substation, Moccasin, Mont., in 1924.

Crop and	Yield per	Acre (bus.)	
Rate of Seeding (Lbs. per Acre)	Flax	Wheat	Relative Yield
Flax 15-Wheat 20	3.2	16.0	97
Flax 15-Wheat 30 Flax 25-Wheat 20	2.7 3.8	18.2 13.5	100 93
Flax Alone 25	10.3		100
Wheat Alone 60	Mission	24.2	100

State College of Agriculture, Bozeman (Barberry Eradication, W. N. Christopher) (No report)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (G. A. Wiebe) (No report)

Agricultural Experiment Station, Moscow (Stripe Rust Investigations, C. J. Hungerford) (No report)

OREGON

Sherman County Branch Station, Moro (D. E. Stephens) (No report)

CALIFORNIA

Biggs Rice Field Station, Biggs (J. W. Jones) (No report)

University Farm, Davis (V. H. Florell) (December 1) The weather this fall has been very favorable for cereal crops. In October several good rains moistened the soil to a depth of from 10 to 15 inches. There also were several good rains in November. Seeding of the nursery experiments was begun November 5. On the night of November 8 a heavy rain of 1.36 inches interrupted seeding operations. These were resumed on November 14 andall seeding was completed on November 21. Most of the seeding completed before the rain on November 8 consisted of the comparative nursery experiments with wheat and a number of hybrid rows. These have already emerged but with only fair to poor stands. Since there was considerable baking of the soil the young shoots have not been able in all cases to penetrate the crust. It is estimated that there is about 70 per cent of a stand on this planting. Rain at an early date might enable at least a portion of the encrusted plants to emerge. The earliest groups of material sown in the nursery since November 14 are emerging with good stands.

The experiments in field plats have been sown about 10 days. Wheat and barley are emerging, while the varieties of oats are beginning to germinate.

Dr. H. H. Love's wheat-hybrid nursery contains more than 800 rows this year. The material in replicated rows is emerging with good stands, while that represent for individual plants is emerging.

As a whole the cereal experiments this season are in very good condition. The weather has been favorable and there has been sufficient moisture so that prompt germination can take place. More rain will soon be needed and the present prospects are good for a storm within a short time.

Agricultural Experiment Station, Berkeley (F. N. Briggs) (No report)

CEREAL COURIER

Official Messenger of the Office of Cereal Investigations
Bureau of Plant Industry, U. S. Dept. of Agriculture
(NOT FOR PUBLICATION)

Vol. 16

December 31, 1924
Personnel (Dec. 16-31) and Project Issue.

No.31

PERSONNEL ITEMS

- Dr. C. R. Ball, Senior Agronomist in Charge, will leave Washington January 9 to attend a meeting of pathologists and field assistants in barberry eradication at Minneapolis, Minn. He also will attend the agricultural extension conference at Purdue University on January 14 and give two illustrated talks.
- B. B. Bayles, junior agronomist in charge of the cereal nursery at the Sherman County Branch Station, Moro, Oreg., has been authorized to proceed from Moro to Corvallis to consult with the staff of the Farm Crops Department of the Oregon Agricultural Experiment Station regarding cooperative cereal experiments and the preparation of a report on the past year's work at Moro, and to use the library facilities of the Station.
- Warren N. Christopher, assistant pathologist and State leader of barberry eradication in Montana since April 1, 1923, resigned his position October 13, 1924, to accept a position in the botany department of the Louisiana State University at Baton Rouge, La. William L. Popham, until recently field assistant in barberry eradication in Montana, has succeeded Mr. Christopher as State leader, with headquarters at Bozeman. Hont.
- Gordon C. Curran, associate pathologist and State leader of barberry eradication in Illinois, came to Washington December 29, having traveled by automobile from Urbana, Ill., in company with Earl D. Cornwell and Joseph P. Hawkes, former field assistants in barberry eradication, and Lewis Turner, and P. A. Young, graduate students in botany of the University of Illinois. Mr. Curran conferred with specialists in the Office concerning the progress of barberry eradication.
- Carroll F. Dunshee, in charge of rice investigations for the University of California, was appointed collaborator with this Office, effective December 1, in order that he may assist and cooperate in the rice investigations that are being conducted at Biggs, Calif.
- Donald G. Fletcher, assistant pathologist in barberry eradication with head-quarters at the Conference for the Prevention of Grain Rust in Minneapolis, Minn., came to Washington December 20 to assist in preparing statistics, maps, and reports of the barberry eradication campaign of 1924 for use in an annual report of the Conference for the Prevention of Grain Rust, and to discuss plans for the publicity to be carried out in cooperation with the Conference during the coming year.

Miss Helen Hart, agent in the rust epidemiology studies conducted in cooperation with the Minnesota Agricultural Experiment Station, came to Washington to attend the scientific meetings that are being held in Washington the latter part of December.

- Dr. G. N. Hoffer, pathologist in charge of the investigation of root, stalk, and ear rots of corn, in cooperation with the Purdue University Agricultural Experiment Station, is in Washington to confer with members of the Office on cereal-disease subjects. He also will present a paper before the meeting of the American Phytopathological Society. Doctor Hoffer will return to Lafayette, Ind., early in January.
- Dr. F. E. Kempton, associate pathologist in charge of barberry eradication, and I. D. Hutton, associate pathologist in barberry eradication, have been authorized to attend a field meeting of barberry workers in the Twin Cities, Minnesota, January 12 to 16 to discuss results of the past season's campaign and plans for the coming year. They perhaps will visit other points in Minnesota, Iowa, Wisconsin, Illinois, Indiana, Ohio, and South Dakota if conditions warrant.
- M. T. Jenkins, assistant agronomist in the cooperative corn breeding investigations at Ames, Iowa, arrived in Washington December 17 to confer with specialists of the Office regarding future cooperative experiments.

Miss Rose M. Lefebvre, clerk in this Office since September 14, 1918, resigns at the termination of December 31, 1924, to accept a position with a private office She is succeeded by Miss Julia Etta Chute, formerly of the Office of Sugar Plant Investigations.

- M. N. Levine, associate pathologist in the cooperative cereal-disease investigations at University Farm, St. Paul, Minn., has been granted the degree of Doctor of Philosophy.
- Dr. E. B. Mains, agent in the cooperative cereal-disease investigations conducted at Purdue University Agricultural Experiment Station, has been authorized to proceed from LaFayette, Ind., to Washington, D. C., to consult with officials of this Office and to prepare a cooperative manuscript on cereal diseases. Doctor Mains will remain in Washington until about the middle of January.
- Dr. L. E. Melchers, head of the department of botany and plant pathology of the Kansas Agricultural College, and agent in the cooperative cereal-disease research, is in Washington to confer with officials of this Office regarding cooperative manuscripts on cereal disease investigations and to attend the scientific meetings now being held in Washington.
- Dr. I. E. Melhus, professor of plant pathology at the lowa Agricultural College, and collaborator of the Bureau of Plant Industry, consulted with officials of this Office on December 29 concerning the preparation and revision of two manuscripts on cereal diseases.
- Dr. W. W. Robbins, collaborator in the cooperative cereal-disease investigations with the California Agricultural Experiment Station, recently spent several days in conference with officials of the Office regarding cereal-disease subjects. On the return trip to California he arranged a meeting in Chicago with Noel F. Thompson, associate pathologist in charge of the investigation of chemical method of destroying barberry bushes, in order to aid in the preparation of manuscripts covering investigations begun by him at Madison, Wis., in 1922 and now being com-

- Miss Addie E. Pieh, of Madison, Wis., has been employed to assist Dr. J. G. Dickson and Miss G. O. Wineland in their histological studies of scab of cereals, in the laboratory at the Wisconsin Apricultural Experiment Station in cooperation with this Office.
- M. A. Smith, State leader of barberry eradication in Iowa, was in Washington for a few days in December, in company with Donald G. Porter, State extension pathologist and collaborator with this Office. They discussed with members of the Office the progress of barberry eradication in Iowa and attended the various scientific meetings held during the latter part of the month.
- Dr. L. J. Stadler, agronomist at the Missouri Agricultural Experiment Station, and agent in the cooperative investigations with pereals, consulted with officials of the Office during the latter part of December.
- Dr. E. C. Stakman, agent in the cooperative cereal-disease investigations conducted with the Minnesota Agricultural Experiment Station, arrived in Washington, D. C., on December 19 to confer with various officials of the Office regarding the progress of the experiments. He will remain until January 6.
- G. A. Wiebe, assistant agronomist, in charge of the cooperative cereal experiments at the Aberdeen Substation, Aberdeen, Idaho, has been authorized to proceed from Berkeley, Calif., where he is engaged in part-time graduate study, to Sacaton, Ariz., to sow a cereal nursery. He will be absent from Berkeley about two weeks.

VISITORS

Among the many visitors in the Office during the period of the various scientific meetings the following called at the Office:

Earl D. Cornwell and Joseph B. Hawkes, field assistants in barberry eradication in Illinois for the past two or three years.

Lewis Turner and P. A. Young, graduate students in bothny at the University of Illinois.

TO ALL MEMBERS OF THE STAFF

What was said a year ago about our progress and achievement remains true.

The year 1924 has been a notable one.

Our last remaining independent investigations outside of Washington, D. C., -the Rice Field Station at Biggs Calif., has been made cooperative with the State
Agricultural Experiment Station. The principle of cooperation in research has
been abundantly justified in the quantity of work accomplished with given funds
and in the output of results.

Many members of the staff have taken additional study to fit themselves better for the lines of work they are now pursuing and for those which will develop as the years pass. Opportunity and encouragement have been given by the Officers of the Bursau and the Department and by the faculties of the colleges concerned. Preparation pays:

The Reclassification Act has been made effective both in the District of Columbia and in the field service. It is recognized to be an experiment subject to change where change will improve the service and subject to repeal if abused. While perhaps not wholly satisfactory in every respect it is a long step in the right direction. The hearty cooperation of the staff in helping to operate under it is greatly appreciated.

Our financial situation in general is good. While not all the funds required to put the Reclassification Act into effect were appropriated we have received the major part of them. In this we are better off than some other units. A small increase is contained in the pending appropriation bill for next year and there is a possibility of still further additions. In any case we know that our work has the confidence and support of the people in the States where it is located.

Lot us be grateful for the good things of the present and hopeful of better to come, remembering that most good things come from conscious preparation and purposeful effort. Suggestions for the betterment of our work are welcome from all. With best wishes for 1925, I am

Very sincerely,

C. R. Ball, Senior Agronomist in Charge.

December 31, 1924.

INPORTANT

Extract from Bureau of Plant Industry Memorandum 115, issued December 27, 1924, by the Chief of the Bureau of Plant Industry, concerning the handling of imported and exported plant material:

All plant material, including living plants, bulbs, seeds, etc., ordered from abroad should be obtained through the Office of Foreign Seed and Plant Introduction.

All seeds, living plants, and other plant material to be sent out of this country for exchange or other purposes first must be inspected at the plant inspection house of the Federal Horticultural Board, in cooperation with the Office of Foreign Seed and Plant Introduction; correspondence concerning such shipments will be handled, however, by the originating office.

All persons connected with the Office of Cereal Investigations who may be interested in the handling of imported and exported plant material will kindly send their requests to this Office, where the necessary requisitions and application blanks will be properly executed, thus avoiding unnecessary duplication and the loss of time and valuable plant material that has occurred in the past.

PROJECT REPORTS

OAT INVESTIGATIONS

(T. R. Stanton, Agronomist in Charge.)

Nursery Experiments with Fall-Sown Oats.

In the nursery experiments with fall-sown oats at the Arlington Experiment Farm in 1924, approximately 800 different strains were grown. Of these 96 were grown in duplicate plats of three 15-foot rows each, 204 in duplicate single 15-foot rows, and about 500 in single 5-foot plant rows.

An interesting result of these nursery experiments has been the continued promising yielding behavior of the selections representing winter forms of Fulghum. In vegetative growth these forms are distinct from the original Fulghum, as the plants are more spreading in early growth and the leaves are narrower and of a darker green color. In such kernel characters as color, awn type, etc., they are similar to ordinary Fulghum, but there is considerable variation in size of kernel. Several of the most promising in yield and quality of grain have been advanced to the varietal experiments in drill plats for 1924-1925.

If it can be demonstrated that these strains possess marked cold-resistance over the ordinary Fulghum they should prove valuable for sowing in the more northern sections of the winter-oat belt.

Some of the various selections from hybrids between Fulghum and Culberson, Fulghum and Hatchett, Fulghum and Aurora, etc., also continued to be promising. As in 1923, the winter again was too mild to get much of a line on the relative cold resistance of these strains. A number appear to be homozygous for practically all plant and kernel characters, but it is impossible to discard intelligently until additional information is available on their winter resistance. It is hoped that the current winter may be sufficiently severe to afford such a test.

The material grown in 5-foot rows consisted mostly of selections from Fulghum which are being used in the genetic studies of false wild oats. In addition
to the material used in these studies, a large number of plant selections were
isolated from this nursery primarily for the development of superior strains of
Fulghum. These were sown in plant rows in the fall of 1924. False wild plants
were observed and selected from several different strains of Fulghum, including
some of those being grown in plant rows.

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS,

JANUARY 1 TO DECEMBER 31, 1924.

The following 76 papers, resulting from the work of the Office of Cereal Investigations, were published during the calendar year 1924, in the various series of Departmental publications, in publications of the cooperating State agricultural experiment stations, and in private journals.

AGRONOMIC SUBJECTS

Corn

Effects of Selection on the Yield of a Cross between Varieties of Corn, by F. D. Richey. U. S. Dept. Agr. Bul. 1209, 19 p., 2 fig. February, 1924.

Adjusting Yields to their Regression on a Moving Average, as a Means of Correcting for Soil Heterogeneity, by <u>F. D. Richey</u>. Jour. Agr. Research, 27: 79-90, 2 graphs. January 12, 1924.

Defective Seeds in Maize--An Ancient Character, by <u>F. D. Richey</u>. Jour. Heredity, 14: 359-360, fig. 12. November, 1923. (Received January 2, 1924.)

Handling the Soft-Corn Crop, by <u>F. D. Richey</u>. U. S. Dept. Circ. 333, 8 p., 2 pl., 4 fig. October, 1924.

A Program of Corn Improvement, by <u>C. M. Woodworth</u>. Ill. Agr. Exp. Sta. Circ 284, 24 p., 12 fig. July, 1924. [Essentially a reprint of a section with the same title in Bulletin 255, entitled "Corn Root, Stalk, and Ear Rot Diseases and Their Control thru Seed Selection and Breeding."] (In cooperation with the Offic of Cereal Investigations, Bureau of Plant Industry, U. S. Department of Agriculture.)

Wheat

Improving the Quality of American-Grown Durum Wheat, by J. A. Clark. Macaroni Journal, 6: 21-23. July 15, 1924.

Supernumerary Spikelets in Mindum Whoat, by <u>F. A. Coffman</u>. Jour. Heredity, 15: 187-192, fig. 30-33. April. 1924.

A Method of Detecting Mixtures in Kanred Wheat Seed, by <u>C. O. Johnston</u> and <u>C. W. Bower</u>. Jour. Amer. Soc. Agron. 16: 467-470. July, 1924. ("Joint contribution from the Office of Cereal Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, and the Department of Agronomy and of Botany and Plant Pathology, Kansas Agricultural College.")

The Blooming of Wheat Flowers, by <u>C. E. Leighty</u> and <u>W. J. Sando</u>. Jour. Agr. Research, 27: 231-244, 2 fig. February 2, 1924.

Pistillody in Wheat Flowers, by <u>C. E. Leighty</u> and <u>W. J. Sando</u>. Jour. Heredity, 15: 263-268, fig. 15-16. June, 1924.

Electrochemical Treatment of Seed Wheat, by <u>C. E. Leighty</u> and <u>J. W. Taylor</u>. U. S. Dept. Agr. Circ. 305, 7 p., 1 fig. February, 1924.

"Hairy-Neck" "Theat Segregates from Wheat-Rye Hybrids, by C. E. Leighty and J. W. Taylor. Jour. Agr. Research, 28: 567-576, 5 pl. May 10, 1924.

Development of Wheat Plants from Seminal Roots, by <u>I. F. Locke</u> and <u>J. A. Clark</u>. Jour. Amer. Soc. Agron. 16: 261-268, 4 fig. April, 1924. (In cooperation with Office of Dry-Land Agriculture Investigations, Bureau of Plant Industry, U. S. Department of Agriculture.)

The Inheritance of Pubescent Nodes in a Cross between Two Varieties of Wheat, by <u>H. H. Love</u> and <u>W. T. Craig</u>. Jour. Agr. Research, 28: 841-844. May 24, 1924. (In cooperation with Cornell University Agricultural Experiment Station.)

Milling and Baking Experiments with American Wheat Varieties, by <u>J. H. Shollenberger</u> and <u>J. A. Clark</u>. U. S. Dept. Agr. Bul. 1183, 92 p., 5 pl., 23 fig. February 7, 1924. (In cooperation with Milling Investigations, Grain Division, Bureau of Agricultural Economics, U. S. Department of Agriculture.)

<u>Oats</u>

Natural Crossing in Oats at Akron, Colorado, by T. R. Stanton and F. A. Coffman. Jour. Amer. Soc. Agron. 16: 646-659. October, 1924.

Markton, an Oat Variety Immune from Covered Smut, by <u>T. R. Stanton</u>, <u>D. E. Stephens</u> and <u>E. F. Gaines</u>. U. S. Dept. Agr. Circ. 324, 8 p., 1 fig. July, 1924. (In cooperation with the Oregon and Washington agricultural experiment stations, and limited cooperation with the South Dakota, Montana and North Dakota agricultural experiment stations.)

Spring Oat Production, by <u>C. V. Warburton</u>. U. S. Dept. Agr., Farmers' Bul. 392, 22 p., 9 fig. (Issued November, 1917; revised June, 1923. Received from G. P. O. January 4, 1924.)

Barley

Albinism in Barley, by <u>G. A. Wiebe</u>. Jour. Heredity, 15: 221-222, fig. 18. May, 1924.

Rice

Results of Rice Experiments at Cortena, 1923, and Progress in Experiments in Water Grass Control at the Biggs Rice Field Station 1922-23, by C. F. Dunshee and J. W. Jones. Calif. Agr. Exp. Sta. Bul. 375, 38 p., 6 fig. February, 1924. ("The investigations conducted at the Biggs Rice Field Station are planned, financed, and directed by the Office of Cereal Investigations of the Bureau of Plant Industry, U. S. Department of Agriculture, and are conducted by Jenkin W. Jones, agronomist.")

How to Grow Rice in the Sacramento Valley, by J. W. Jones. U. S. Dept. Agr., Farmers' Bul. 1240, 26 p., 6 fig. March, 1924.

Observations on the Time of Blooming of Rice Flowers, by <u>J. W. Jones</u>. Jour. Amer. Soc. Agron. 16: 665-670. October, 1924. (In cooperation with the Cilifornia Agricultural Experiment Station.)

Grain Sorghums and Broomcorn

Seed-Color Inheritance in Certain Grain-Sorghum Crosses, by <u>J. B. Sieglinger</u> Jour. Agr. Research, 27: 53-64. January 5, 1924.

Sorghum Experiments on the Great Plains, by <u>H. N. Vinall, R. E. Getty</u> and <u>A. B. Cron.</u> U. S. Dept. Agr. Bul. 1260, 88 p., 24 fig. August, 1924. (Cooperation between the Office of Forage-Crop Investigations and Office of Cereal Investigations.)

Minor Cereals

The Genetic Relation between <u>Triticum dicoccum dicoccoides</u> and a Similar Morphological Type Produced Synthetically, by <u>H. H. Love</u> and <u>V. T. Craig</u>. Jour. Agr. Research, 28: 515-520, 8 pl. May 10, 1924. (In cooperation with Cornell University Agricultural Experiment Station.)

Experiments with Emmer, Spelt, and Einkorn, by <u>J. H. Martin</u> and <u>C. E.</u> Leighty. U. S. Dept. Agr. Bul. 1197, 60 p., 3 pl., 3 fig. February, 1924.

Emmer and Spelt, by <u>J. H. Martin</u> and <u>C. E. Leighty</u>. U. S. Dept. /gr. Farmers' Bul. 1429, 12 p., 7 fig. July, 1924.

Growing of Rye in the Western Half of the United States, by <u>J. H. Martin</u> and <u>R. W. Smith.</u> U. S. Dept. Lgr., Farmers' Bul. 1258, 18 p., 9 fig. September, 1923. (Received January 31, 1924.)

Flax

Production of Seed Flax, by A. C. Dillman. U. S. Dept. Agr., Farmers' Bul. 1328, 16 p., 8 fig. November, 1924.

Flaxseed Production, by <u>T. E. Stoa</u> and <u>I. C. Dillman</u>. N. Dak. Agr. Exp. Sta. Bul. 178, 43 p., 10 fig. April, 1924. (In cooperation with Office of Cereal Investigations.)

General or Miscellaneous

The Better Utilization of Straws, by <u>C. E. Leighty</u>. Jour. Amer. Soc. Agron. 16: 213-224. March. 1924.

Student's Method for interpreting Paired Experiments, by H. H. Love and A. M. Brunson. Jour. Amer. Soc. Agron. 16: 60-68. January, 1924. (In cooperation with Cornell University Agricultural Experiment Station.)

Methods Now in Use in Carcal Broading and Tosting at Cornell University Agricultural Experiment Station, by H. H. Love and W. T. Craig. Jour. Amer. Soc. Agron. 16: 109-127, 8 fig. February, 1924. (In cooperation with Cornell University Agricultural Experiment Station.)

Research fundamental to the Solving of Crop-Plant Problems, by <u>C. R. Ball</u>. Jour. Amer. Soc. Agron. 16: 553-556. September, 1924.

Taxonomy, by <u>C. R. Ball</u>. Jour. Amer. Soc. Agron. 16: 556-566. September, 1924.

Dry-Farm Crop Rotation Experiments at Moro, Oragon, by D. E. Stephens.
Orag. Agr. Exp. Sta. Bul. 209, 45 p., 2 fig. September, 1924. (In cooperation with Office of Cereal Investigations, U. S. Department of Agriculture.)

Spring Crops for Eastern Oregon, by <u>D. E. Stephens</u>, <u>R. Withycombe</u> and <u>O. Shattuck</u>. Oreg. Agr. Exp. Sta. Bul. 204, 36 p., 14 fig. May, 1924. (In cooperation with the Office of Cereal Investigations, Bureau of Plant Industry, U. S. Department of Agriculture.)

PATHOLOGIC SUBJECTS

Imporfect and Sac Fungi

Disease Resistance as a factor in the Control of Plant Diseases, by J. G. Dickson. Trans. Wis. State Hort. Soc. 1923: 123-131. [1924].

The Control of Plant Diseases Carried by Seeds, by <u>J. G. Dickson</u>. Seed World, 16: 23-24. August 15, 1924. (In cooperation with Wisconsin Agricultural Experiment Station.)

The Nature of Resistance to Seedling Blight of Cereals, by J. G. Dickson, S. H. Eckerson and K. P. Link. Proc. Nat. Acad. Sci. 3: 434-439, 4 fig. December, 1923. (Received January, 1924.) (In cooperation with University of Wisconsin.)

Corn Root, Stalk, and Ear Rot Diseases, and Their Control thru Seed Selection and Breeding, by J. R. Holbert, W. 1. Burlison, B. Kochler, C. M. Woodworth and G. H. Dungan. Ill. Agr. Exp. Sta. Bul. 255, p. 239-478, 86 fig. August, 1924. (In cooperation with Office of Cereal Investigations, Bureau of Plant Industry, U. S. Department of Agriculture.)

Anchorage and Extent of Corn Root Systems, by J. R. Wolbert and B. Koehler. Jour. Agr. Research, 27: 71-78, 5 pl., 1 graph. January 12, 1924. (In cooperation with Illinois Agricultural Experiment Station.)

Wheat Scab and Corn Rootrot Caused by <u>Gibberella saubinetii</u> in Relation to Crop Successions, by <u>B. Koehler</u>, <u>J. G. Dickson</u> and <u>J. R. Holbert</u>. Jour. Agr. Research, 27: 861-879, 2 pl. March 15, 1924. (In cooperation with Wisconsin Agricultural Experiment Station and Funk Brothers Seed Company, Bloomington, Ill.)

Investigations on the Nematode Disease of Cereals Caused by <u>Tylenchus tritici</u> by <u>R. W. Ieukel</u>. Jour. Agr. Research, 27: 925-955, 5 pl., 2 fig. March 22, 1924.

Equipment and Methods for Studying the Relation of Soil Temperature to Diseases in Plants, by R. V. Leukel. Phytopathology 14: 384-397, 5 fig. August, 1924.

Influence of Soil Temperature and Moisture on Infection of Wheat Seedlings by <u>Helminthosporium sativum</u>, by <u>H. H. McKinney</u>. Jour. Agr. Research, 26: 195-217, 6 fig. November 3, 1923. (Received January 17, 1924.) (In cooperation with Visconsin Agricultural Experiment Station.)

The Intracellular Bodies Associated with the Rosette Disease and a Mosaiclike Mottling of Wheat, by <u>H. H. McKinney</u>, <u>S. H. Eckerson</u> and <u>R. W. Webb</u>. Jour. Agr. Research, 26: 605-608, 8 pl. December 22, 1923. (Received February 28, 1924.) (In cooperation with Visconsin and Illinois agricultural experiment stations.)

The Rosette Disease of Wheat and Its Control, by A. G. Johnson, H. H. McKinney, R. W. Webb and C. E. Leighty. U. S. Dept. Agr., Farmers' Bul. 1414, 10 p., 5 fig. June, 1924. (In cooperation with Illinois, Indiana and Wisconsin agricultural experiment stations.)

The Black-Bundle Disease of Corn, by <u>C. S. Reddy</u> and <u>J. R. Holbert</u>. Jour. Agr. Research, 27: 177-205, 6 pl., 4 fig. January 26, 1924. (In cooperation with Funk Brothers Seed Company, Bloomington, Ill., and Wisconsin and Illinois agricultural experiment stations.)

Varietal Resistance in Winter Wheat to the Rosette Disease, by R. W. Webb, C. E. Leighty, G. H. Dungan and J. B. Kondrick. Jour. Agr. Research, 26: 261-270. November 10, 1923. (Received January 12, 1924.) (In cooperation with Illinois and Indiana agricultural experiment stations.)

An Ascigerous Stage and Synonymy for <u>Fusarium moniliforme</u>, by <u>G. O Vineland</u>.

Jour. Agr. Research, 28: 909-922, 2 pl., 6 fig. May 31, 1924. (In cooperation vith Visconsin Agricultural Experiment Station.)

Rusts

Cytological Studies of Infection of Baart, Kanred, and Mindum Wheats by Puccinia graminis tritici Forms III and XIX, by Ruth F. Allen. Jour. Agr. Research, 26: 571-604, 7 pl. December 22, 1923. (Received February 28, 1924.) (In cooperation with California Agricultural Experiment Station.)

The Relation of Common Barberry Bushes to the Occurrence of Black Stem Rust on Wheat and other Cereals in Ohio, by <u>J. W. Baringer</u>. Ohio State Dept. Agr., Div. Plant Industry Bul. 18, 38 p., 14 fig. 1924.

Eradication of Common Barberry and Black Stem Rust in Ohio, by J. W. Baringer and W. G. Stover. Ohio State Univ. Agr. Col. Ext. Serv. Bul. 13, 16 p., 6 fig. Revised February, 1924. (In cooperation with Ohio State University.)

Simultaneous Surveys for Stem Rust: A Method of Locating Sources of Inoculum, by E. M. Freeman and L. V. Melander. Phytopathology 14: 359-362, 1 fig. August. 1924.

Morphological and Physiological Studies on the Resistance of Wheat to <u>Puc-cinia graminis tritici</u> Erikss. and Henn., by <u>C. R. Hursh</u>. Jour. Agr. Research, 27: 381-412, 2 pl., 1 fig. February 9, 1924. (In cooperation with Minnesota Agricultural Experiment Station.)

Barberry Eradication in Illinois, by <u>F. E. Kempton</u>, <u>G. C. Curran</u> and <u>E. D. Griffin</u>. Trans. Ill. State. Acad. Sci. 16: 198-209, 4 fig. 1923. (Received April 2), 1924.) (In cooperation with Extension Division of the College of Agriculture of the University of Illinois.)

The Resistance of Oht Varieties to Stem Rust, by <u>W. W. Mackie</u> and <u>R. F. Allen.</u> Jour. Agr. Research, 28: 705-720, 2 pl., 1 fig. May 17, 1924. (In cooperation with the California Agricultural Experiment Station.)

Notes on Greenhouse Culture Methods Used in Rust Investigations, by E. B. Mains. Proc. Ind. Acad. Sci. 23 (1923): 241-257, 5 fig. 1924. (In cooperation with the Botanical Department of the Purdue University Agricultural Experiment Station.)

Accial Stages of the Leaf Rusts of Rye, <u>Puccinia dispersa</u> Erikss. and <u>Henn.</u>, and of Barley, <u>P. anomala</u> Rostr., in the United States, by <u>E. B. Mains</u> and <u>H. S. Jackson</u>. Jour. Agr. Research, 28: 1119-1126, 1 pl. June 14, 1924. (In cooperation with the Purdue University Agricultural Experiment Station.)

The Effect of Fertilizers on the Development of Stem Rust of Wheat, by E. C. Stakman and O. S. Aamodt. Jour. Agr. Research 27: 341-380, 3 pl., 4 fig. February 9, 1924. (In cooperation with Minnesota Agricultural Experiment Station.)

Puccinia graminis poae Erikss: and Henn. in the United States, by E.C. Stakman and M.N. Levine. Jour. Agr. Research, 28: 541-548, 1 pl. May 10, 1924. In cooperation with Minnesota Agricultural Experiment Station.)

The Effect of Rust Infection upon the Water Requirement of Wheat, by <u>F. Weiss</u>. Jour. Agr. Research, 27: 107-118. January 12, 1924. (In cooperation with Hinnesota Agricultural Experiment Station.)

Downy Mildews

Mocturnal Production of Conidia by <u>Sclerospora graminicola</u>, by <u>V. H. Veston</u>, <u>Jr. Jour. Agr. Research</u>, 27: 771-784, 2 pl., 1 diagram. March 8, 1924.

Smuts

The Inheritance of Smut Resistance in Crosses of Certain Varieties of Oats, by A. F. Barney. Jour. Free. Soc. Agron. 16: 283-291, 4 fig. April, 1924. (Cooperation between Cornell University Experiment Station and Office of Cereal Investigations.)

Experiments with Flag Smut of 'Moat and the Causal Fungus, <u>Urocystis</u> tritiai Kcke., by <u>Marion 1. Griffiths</u>. Jour. Agr. Research, 27: 427-450, 3 pl., 1 graph. February 16. 1924.

Studies on the Parasitism of <u>Urocystis tritici</u> Koern., the Organism Causing Flag Smut of Wheat, by R. J. Noble. Jour. Agr. Research, 27: 451-490, 3 pl., 2 fig. February 16, 1924.

Effects of the Modified Hot-Vater Treatment on Germination, Growth, and Yield of Wheat, by <u>V. f. Tapke</u>. Jour. Agr. Research, 28: 79-37, 5 pl. April 5. 1924.

Summary of Literature on Bunt, or Stinking Smut, of Wheat, by <u>H. M. Woolman</u> and <u>H. B. Humphrey</u>. U. S. Dept. Agr. Bul. 1210, 44 p. May 1, 1924. (In sooperation with Washington Agricultural Experiment Station.)

Studies in the Physiology and Control of Bunt, or Stinking Smut, of Wheat, by H. M. Woolman and H. B. Humphrey. U. S. Dept. Agr. Bul. 1239, 29 p., 5 pl., 7 fig. May, 1924. (In cooperation with Washington Agricultural Experiment Station.)

Bacteriological Diseases

A Bacterial Stripe Disease of Proso Millet, by Charlotte Elliott. Jour. Agr. Research, 26: 151-159, 4 pl. October 27, 1923. (Received January 3, 1924.)

Bacterial Blight of Rye, by <u>C. S. Reddy</u>, <u>J. Godkin and A. G. Johnson</u>. Jour. Agr. Research, 28: 1039-1040, 1 pl. June 7, 1924. (In cooperation with Tisconsin Agricultural Experiment Station and Funk Brothers Seed Company, Bloomington, Ill.)

PHYSIOLOGICAL AND CHEMICAL SUBJECTS

The Course of Acidity Changes during the Growth Period of Theat with Special Reference to Stem-Rust Resistance, by Annie M. Furd. Jour. Agr. Research, 27: 725-735, 5 graphs. March 8, 1924.

Physiological Studies on Cereals. II. The Occurrence of Amino Acids and Polypeptides in the Ungerminated Oat Kernel, by S. L. Jodidi. Jour. Franklin Inst. 198: 201-211. August, 1924. (Cooperation between the Offices of Plant Physiological and Fermentation Investigations and Cereal Investigations, Bureau of Plant Industry.)

Effects of the Mathod of Desiccation on the Nitrogenous Constituents of Plant Tissue, by <u>K. P. Link</u> and <u>E. R. Schulz</u>. Jour. Amer. Chem. Soc. 46: 2044-2050, 2 fig. September, 1924. (Cooperation between the Department of Agricultural Chamistry, University of Visconsin, and the Office of Careal Investigations.)

The Extraction of Nitrogenous Constituents from Plant Cells, by W. E. Tottingham, E. R. Schulz and S. Lepkovsky. Jour. Amer. Chem. Soc. 46: 203-208. January, 1924. (Contribution from the Department of Agricultural Chemistry, University of Wisconsin, and the Office of Cereal Investigations.)

MANUSCRIPTS IN PRESS, DECEMBER 31, 1924

On December 31, 1924, the following 54 manuscripts, resulting from the work of the Office of Cereal Investigations, were in press, scheduled to appear in the various series of Departmental publications, in the bulletin series of cooperating State agricultural experiment stations, and in private journals. In addition nine articles on cereal subjects, submitted by members of the staff of the Office during 1922, are awaiting publication in the Agricultural Cyclopedia for Young People.

AGRONOMIC SUBJECTS

Corn

lojap Striping, a Heritable Chlorophyll Defect of Maize, by M. T. Jenkins. Approved June 25, 1924, for publication in the Journal of Heradity.

Associations between Numbers of Kernel Rows, Productiveness, and Deleterious Characters in Corn, by <u>C. H. Kyle</u> and <u>H. F. Stoneberg</u>. Submitted August 6, 1924, for publication as a Department Bulletin.

Carbohydrate Storage in the Endosperm of Sweet Corn, by <u>Lois Lampe</u> and <u>M. T. Meyers</u>. Approved December 1, 1924, for publication in Science.

A Statistical Study of the Relation between Seed Ear Characters and Productiveness in Corn, by <u>F. D. Richey</u> and <u>J. G. Willier</u>. Submitted October 25, 1924, for publication as a Department Bulletin.

Wheat

Segregation and Correlated Inheritance in Crosses between Kota and Hard Federation Wheats, for Rust and Drought Resistance, by <u>J. A. Clark</u>. Submitted March 29, 1924, for publication in the Journal of Agricultural Research; galley, October 18; page proof, November 14.

Varietal Experiments with Hard Red Winter Wheats in Dry Areas of the Western United States, by <u>J. A. Clark</u> and <u>J. H. Martin</u>. Dept. Bul. 1276; submitted November 8, 1923; galley, November 3, 1924.

Comparative Value of Kota and Marquis Wheats for Milling and Breadmaking, by J. A. Clark and J. H. Shollenberger. Approved December 1, 1923, for publication in The Northwestern Miller.

Studies on the Inheritance of Earliness in Wheat, by <u>V. H. Florell</u>. Submitted February 29, 1924, for publication in the Journal of Agricultural Research galley, November 22; page proof, December 11.

Technique of Hybridization of Wheat, by <u>V. H. Florell</u>. Approved August 18, 1924, for publication in the Journal of Heredity.

The Furrow Method of Sowing Wheat in the Judith Basin, by R. 7. May. Submitted April 22, 1924, for publication as a cooperative bulletin of the Montana Agricultural Experiment Station.

Oats . . .

A Study of Variability in the Burt Oat, by <u>F. A. Coffman</u>, <u>J. H. Parker and K. S. Quisenberry</u>. Submitted July 17, 1924, for publication in the Journal of Agricultural Research; galley, December 22.

Variation in the Kherson oat at Akron, Colorado, by <u>F. A. Coffman</u> and <u>T. R. Stanton</u>. Submitted August 23, 1924, for publication in the Journal of Agricultural Research.

Barley

Tests of Barley Varieties in America, by <u>H. V. Harlan</u>, <u>M. I. Martini</u> and <u>M. N. Pope</u>. Submitted September 30, 1924, for publication as a Department Bulletin.

Some Cases of Apparent Single Fertilization in Barley, by <u>H. V. Harlan</u> and <u>M. N. Pope</u>. Approved January 15, 1924, for publication in the Journal of Botany.

General or Miscellaneous

Investigations with Flax and Cereals, by <u>J. C. Brinsmade, Jr.</u> Contribution to Dept. Bul. 1301, by the Office of Dry-Land Agriculture Investigations. Galley, December 10, 1924.

Cereal Breeding at Ames, by <u>L. C. Burnett</u>. Submitted June, 1924, as a co-operative contribution to the Yearbook of the Iowa State Department of Agriculture.

Experiments with Cereals at the Akron Field Station in Colorado, by <u>F. A.</u> <u>Coffman.</u> Dept. Bul. 1287; submitted August 31, 1923; galley, December 22, 1924.

A Handy Pollen Carrier, by <u>C. E. Leighty</u> and <u>W. J. Sando</u>. Approved December 9, 1924, for publication in the Journal of Heradity.

Cereal Crops, by <u>R. W. Smith</u>. Submitted March 12, 1924, as a cooperative contribution to the Superintendent's reports of the Dickinson Substation for the years 1922 and 1923, to be published as a bulletin of the North Dakota Agricultural Experiment Station.

Experiments with Small Grains on the Arlington Experiment Farm, by J. W. Taylor. Dept. Bul. 1309; submitted January 28, 1924; galley, October 13.

PATHOLOGIC SUBJECTS

Imperfect and Sac Fungi, etc.

Leaf-Spot of Maize, a Disease Distinct from Leaf-Blight, by <u>C. Drechsler.</u>
Approved November 3, 1924, for publication as an abstract in Phytopathology.

Leaf-Spot of Rodtop Caused by an Apparently Undescribed Species of Helminthosporium, by <u>C. Drechsler</u>. Approved November 3, 1924, for publication as an abstract in Phytopathology.

Leaf-Spot of Maize Caused by <u>Ophiobolus heterostrophus</u> n. sp., the Ascigerous Stage of a Helminthosporium Exhibiting Bipolar Germination, by <u>C. Drechsler</u> Submitted November 29, 1924, for publication in the Journal of Agricultural Research.

Influence of Balanced Nutrient Supply on Susceptibility of Corn Plants to Gibberella saubinatii (Mont.) Sacc., by <u>G. N. Hoffer</u> and <u>J. F. Trost</u>. Approved November 3, 1924, for publication as an abstract in Phytopathology.

Acidity and Varietal Resistance of Wheat to <u>Tilletia tritici</u>, by <u>A. M. Hurd-Karrer</u>. Approved October 20, 1924, for publication in the American Journal of Botany.

Factors Influencing Lodging in Corn, by <u>B. Koehler</u>, <u>G. H. Dungan</u> and <u>J. R. Holbert</u>. Submitted February 29, 1924, for publication as a cooperative bulletin of the Illinois Agricultural Experiment Station.

A Method of Increasing the Efficiency of Filter Cylinders, by H. H. McKinney. Approved August 11, 1924, for publication in Phytopathology.

Certain Aspects of the Virus Diseases, by <u>H. H. McKinney</u>. Submitted September 23, 1924, for publication as a Department Circular; withdrawn December 13, 1924, and approved for publication in Phytopathology in order to obtain more prempt publication.

Certain Footrot Diseases of Wheat in America, by H. H. McKinney. Submitted December 26, 1924, for publication in the Journal of Agricultural Research.

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